



Engineering Mindset Mini-Grant Program
2020 Application Deadline: August 7th

Alaska Children's Trust
3201 C Street, Ste 110
Anchorage, AK 99503
907-248-7371

www.akafterschool.org

Engineering Mindset Mini-Grant RFA:

Introduction:

Alaska Afterschool Network Mission

The Alaska Afterschool Network's mission is to support, strengthen, and advocate for quality Out-of-School-Time (OST) programs and activities for children, youth, and families throughout Alaska. The Alaska Afterschool Network is a program of Alaska Children's Trust.

The Network is dedicated to expanding access to productive out-of-school science, technology, engineering, and mathematics (STEM) learning programs by improving existing programs and creating new ones. The ability for students to successfully participate in the global workplace depends on their exposure to high quality STEM opportunities. OST STEM can almost double the amount of time some students have to question, tinker, learn, and explore STEM topics, and as such are uniquely effective at reducing achievement gaps. The more students participate in STEM learning opportunities out-of-school, the more interested they become in STEM subjects and majors.

Quality STEM programs share several elements that are infused into every aspect of their program. They create STEM pathways and transitions to help create successful "hand-offs" between program opportunities including internships and work-based learning. They connect youth with role models and mentors to foster the sustained involvement of youth and help them establish a STEM identity. They utilize the **Equity & Inclusion Framework** to support programs and STEM partners to understand the fundamentals of equity and access and put into place effective practices and supports for change.

More about the **Equity & Inclusion Framework** can be found here:

<https://www.akafterschool.org/engineering-mindset>

Finally, quality STEM programs promote the development of an **Engineering Mindset**. The Engineering Mindset refers to the values, attitudes, and thinking skills associated with engineering. This skillset is not limited for use in engineering and can be applied broadly across all STEM disciplines. Youths with an engineering mindset:

1. Consider STEM problems in context.
2. Use a specific problem-solving process.
3. Investigate the properties and uses of materials.
4. Consider constraints and criteria that require trade-offs.
5. Envision multiple solutions.
6. Apply science and math knowledge to problem solving.
7. Evaluate designs and make improvements.
8. Persist and learn from failure.
9. Work effectively in teams.
10. Envision themselves as engineers.

More information on the Engineering Mindset can be found here:
<https://www.akafterschool.org/engineering-mindset>

Although there has been a significant increase in the quantity and quality of STEM learning experiences in afterschool and summer learning programs through the state's STEM system building efforts, women and minority populations are still drastically underrepresented in STEM fields. For example, although women make up half of the total U.S. college-educated workforce, they make up only 29% of the science and engineering workforce. Female scientists and engineers are concentrated in different occupations than are men, with relatively high shares of women in the social sciences (62%) and biological, agricultural, and environmental life sciences (48%), but relatively low shares in engineering (15%) and computer and mathematical sciences (25%). These national trends are consistent with trends in the State of Alaska and show that Alaska is not unique from the lower 48 states. This suggests female STEM professionals face systemic barriers that limit their participation in the STEM fields; these barriers begin in how we teach STEM in school and out-of-school and demonstrate the need for Alaska to consciously engage more girls in STEM.

While the primary focus of the Engineering Mindset mini-grant is on engaging more girls in STEM, we acknowledge that in the state of Alaska many of our programs may not have a large youth population to draw from. These programs are no less important, valuable, or in need of quality STEM for the youth in their community. That is why the Engineering Mindset mini-grant will be conscientious of additional barriers faced by these programs and is open to programs seeking to engage and serve other traditionally underserved or underrepresented populations in STEM, for example, rural Alaskans, English language learners, and Alaska Native youth.

This grant supports work that must be done to include girls and other underserved populations. We must be accountable for unconscious bias and other social pressures that prevent girls from seeing themselves as scientists. The Network's desire is that girls across Alaska have access to high-quality STEM opportunities in their community during out-of-school time. No student should feel unwelcome or incapable in STEM spaces because of the lack of institutional support. Girls should be able to identify themselves as scientists, explorers, experimenters, and should have access to pathways towards STEM careers.

The Alaska Afterschool Network, a program of the Alaska Children's Trust, has partnered with STEM Next Opportunity Fund and Verizon Wireless to invest directly into at least six (6) afterschool programs to increase their capacity to offer STEM programming that fosters an engineering mindset among girls and underrepresented populations in STEM. The Engineering Mindset Mini-Grant will focus on recalibrating programs to build an engineering mindset, require programs to state how they will engage girls and underrepresented youth, and engage programs in a STEM quality improvement initiative.

STEM Program Quality Improvement Requirement:

The Network will require all Engineering Mindset Mini-Grantees to participate in a STEM quality improvement initiative. The Network will utilize the Dimensions of Success (DoS) tool for the assessment phase of the quality improvement process. Each grantee will receive at least two in-person DoS observations (subject to change based off COVID-19 health mandates). This will provide the Network a statewide data snapshot of STEM program quality.

More information on Dimensions of Success can be found here:

<https://www.akafterschool.org/dos>

GRANT PROGRAM INFORMATION

Grant Terms and Requirements:

Size of Mini-Grants: \$3,000

Submission Deadline: August 7th

Grant Period: August 10th 2020 – December 31st 2020

Grant Report Due: January 31st, 2021

The funding from awarded grants will come directly from the Alaska Afterschool Network – Alaska Children’s Trust. Grantees may not charge expenses to the Engineering Mindset Mini-Grant until an executed contract is in place.

Eligibility:

- Out-of-School Time programs that meets with a consistent group on an ongoing basis throughout the grant cycle.
- Only applicants who send a complete application will be considered.
- Only one mini-grant will be awarded per organization.

Funding Activities:

Engineering Mindset Grants will fund programs that embed an engineering mindset into their STEM activities and that actively recruit and engage girls and other underrepresented communities in STEM. All grantees will be expected to include a focus on utilizing the equity and inclusion framework as a component of the work.

Fundable Activities Include:

- Developing/implementing curricula designed to foster an engineering mindset with girls.
- Developing outreach to better recruit and engage girls in STEM.
- Materials and supplies that better facilitate the program.
- STEM Kits that are sustainable (not single use).
- Bringing local female STEM professionals into the classroom or virtually as role models and to foster career exploration.

- Adapting programs and activities for continued connection despite the COVID-19 pandemic.
- Community building activities among girls in OST to increase engagement in STEM and develop STEM identities.

Reporting:

Grantees will be expected to prepare a Final Report of Grant Impact following the conclusion of the grant cycle. This report must include:

- Number of youths reached during grant cycle and the ratio of males and females
- Number of new female youth the program has recruited and engaged
- A demonstration that youth have effectively developed an engineering mindset

PROPOSAL CONTENTS

Contact Information:

Provide the following contact information:

1. Organization Name
2. Organization Address
3. Organization Phone Number
4. Applicant Contact Name
5. Applicant Phone Number
6. Applicant Email Address

Organization Description and History:

Briefly describe your organization, including the following information:

1. Services Offered
2. Geographic areas served
3. Individuals served
4. Partners for this project specifically
5. Estimate how many youths will benefit from this project, and how many girls specifically.

Project Summary:

Briefly outline your proposed project in 3-5 sentences.

Project Description:

Describe your project in detail. Write about the need for the project, give an in-depth description of what the project entails, and detail the intended outcomes of the grant. Further, please write a brief paragraph describing how your project applies to these three additional areas of focus:

1. **Need** (2k character limit) - *Describe the need for this project. What specific barriers to access hinder girls from engaging in STEM? What specific obstacles or challenges does your program face locally? Broadly? What approach to solving this need do you think is best and how will this apply to your grant?*

2. **Project** (4k character limit) Describe the project in detail. Define the broad concept of your project and outline your implementation process. Explain how the project will engage more girls in STEM and how many girls will benefit. Explain what supplies or materials you will use or need, and any partners you plan on working with.
3. **Engineering Mindset** (2k character limit) - Describe how this project fosters an engineering mindset by embedding an invention/engineering mindset/problem solving methodology into afterschool.

More information on Engineering Mindset can be found here:

<https://www.akafterschool.org/engineering-mindset>

4. **Female Youth** (2k character limit) - Describe how this project specifically aims to engage more girls in STEM. Describe how your program will conduct outreach and recruit girls in STEM. Explain how this project addresses the needs of girls in your community and why this is essential to removing barriers to access for girls.

More resources on Engaging Girls in STEM can be found here:

<https://www.akafterschool.org/engaging-girls-in-stem>

5. **Culturally Responsive** (2k character limit)
Describe how this project specifically aims to improve equitable representation in STEM, such as English language learners, rural youth, and Alaska Native students. Explain how this project utilizes the Equity and Inclusion Framework to support programs in understanding the fundamentals of equity and access and put into place effective practices and supports for change.

More information on The Equity and Inclusion Framework can be found here:

<https://www.akafterschool.org/engineering-mindset>

6. **Impact** (2k character limit)
Describe the intended impact of the project. Talk about the targeted population and explain how girls will be better off as a result of this project. Be specific about the expected benefits and how it relates to establishing an engineering mindset and the recruitment of girls.

Project Timeline:

Provide a comprehensive timeline for the rollout and implementation of your project.

Outcomes:

Provide at least 3 and no more than 5 measurable outcomes that will be reported on at the end of this grant.

Remember, goals are general, broad, and often abstract statements of desired result. Outcomes are more specific, narrow and measurable.

For example:

Non-measurable Outcome: Grant will increase female youth participation.

Measurable Outcome: Grant will improve the ratio of girls in our program from 1:3 to 1:1 through outreach and recruitment. Grant will increase the number of girls in the program by 75%

Non-measurable Outcome: Grant will improve youth engineering mindset.

Measurable Outcome: Grant will use preprogram and post program surveys to demonstrate a marked improvement in the development of an engineering mindset.

Budget & Narrative:

All applicants will be required to submit a project budget and narrative.

PROPOSAL PREPARATION & REVIEW

All proposals will be reviewed by a grant review committee. Evaluation criteria include but are not limited to the completeness of the application, overall merit of the project, the clarity and measurability of the project's goals, engagement with girls and the potential of the project to become a long-term solution for transforming STEM in Out-of-School-Time settings. Preference will be given to applications which do not duplicate existing programs, and which demonstrate measurable results, accountability, and cultural sensitivity.

Notification of Application status and Grant Award and Agreement

Alaska Afterschool Network will notify applicants by letter by August 10th, 2020.

Grant Reports will be due January 31st, 2021.

Alaska Afterschool Network Contact Info

For questions related to the request for proposals, please contact:

Jared Gould
Alaska Afterschool Network
3201 C St, Ste 110
Anchorage, AK 99503

AmeriCorps2@alaskachildrenstrust.org

585-749-6906

For questions related to the on-line application system, please contact:

Stefanie O'Brien
sobrien@alaskacf.org
907-274-6710