



Environment and Natural Resources Trust Fund

2024 Request for Proposal

General Information

Proposal ID: 2024-184

Proposal Title: Building Environmental Educator Capacity through Regional Learning Communities

Project Manager Information

Name: Andy Chambers

Organization: Science Museum of Minnesota

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Project Basic Information

Project Summary: The Science Museum will recruit elementary teachers and students from regions across Minnesota to participate in scaffolded capacity building in watershed education through residencies, on-demand professional development, and annual conferences.

Funds Requested: \$190,000

Proposed Project Completion: June 30, 2026

LCCMR Funding Category: Small Projects (H)

Secondary Category: Environmental Education (C)

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Narrative

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

While some Minnesota teachers are creatively engaging their students in environmental science experiences, many lack the training and resources to teach this content effectively. Opportunities are especially lacking for elementary teachers who are more likely to be subject generalists without strong training specifically in science content. These gaps in teacher training, comfort with the subject, and resource availability mean that student access to environmental science education in elementary school is inconsistent and unequal across the state.

Since 2020, schools have been experiencing extreme teacher attrition, staff shortages, and changing student needs which have further reduced the capacity of teachers to take on environmental education efforts. Teachers' focus on supporting the social and emotional well-being of students, as well as addressing gaps in student learning that developed during the pandemic and severe staff and substitute shortages, leave teachers with very little bandwidth to take on the independent learning necessary to engage in environmental education. The flexible packaging of this program includes in-school pedagogical modeling, asynchronous training, and regional conferences in order to make environmental education resources available to teachers in a way that is responsive to their current realities.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

The Science Museum of Minnesota works with students and teachers in all 87 counties and has experience partnering with districts to integrate STEM topics into their classrooms. We have demonstrated that the combination of in-school residencies and pedagogical resources and professional development is effective in both providing students with immediate learning opportunities and also training teachers to deliver STEM content. Our proposal for increasing confidence around watershed education builds on these successes. We will recruit 40 teacher leaders and 3,000 students from regions across the state over the project's two years. They will be provided a suite of in-school assemblies and residencies that introduce water concepts. Teachers will also receive on-demand professional development that connects them to the wide array of existing curriculum and resources on environmental education. What we've heard from teachers is a desire for a curated list of resources, vetted by a trusted expert. Finally, we would gather teachers for an annual convening to build community between teachers and allow them to hear directly from each other about the success and challenges they faced over the prior year. Teacher surveys given throughout the first year would inform the design of the programs for the second year.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

- 40 participating teacher leaders gain comfort and confidence in environmental education best practices, easier access to watershed and environmental education resources, and a stronger connection to each other as a peer learning community, both regionally and statewide. Those teacher leaders can then support other educators in their regions.
- 3,000 students participate in museum facilitated programs and gain a greater appreciation of Minnesota's natural resources. Supported by teacher leaders, these students develop a broader understanding of watershed processes throughout the year. Teachers deepen these connections following this project, impacting the lives of students in each successive class year.

Activities and Milestones

Activity 1: Recruit 20 teachers per year in regional teacher leader cohorts

Activity Budget: \$8,000

Activity Description:

We will recruit a cohort of 20 teacher leaders each year of the project. Using the 8 regions defined by the Science Museum of Minnesota, we will recruit 5 teachers representing 5 schools from each region. In the first year of the project, we will focus on 4 of the 8 regions. In the second year, we'll recruit from the remaining 4 regions. We will use Minnesota Department of Education (MDE) demographics to prioritize recruitment from schools with higher proportions of underserved audiences (English-language learners, BIPOC students, etc) and schools with limited resources. The Science Museum of Minnesota maintains an integrated database that links the MDE information with our program registrations, allowing us to filter for schools that we've had contact with in the past. Through direct outreach and communication, we will seek to retain these teacher leaders through the course each school year.

Activity Milestones:

| Description | Approximate Completion Date |
|---|-----------------------------|
| Recruit a cohort of 20 teacher leaders each year from 4 of 8 Minnesota regions. | November 30, 2024 |
| Prioritize recruitment from underserved schools and those with limited resources | November 30, 2024 |
| Direct outreach and communication to retain teacher leaders through the course of the school year | June 30, 2025 |
| Recruit from 4 regions in year one, and from the remaining regions in year two. | December 31, 2025 |

Activity 2: Engage teachers in a scaffolded program of in-school residencies, on-demand PD resources, and annual unconference

Activity Budget: \$170,000

Activity Description:

The Science Museum of Minnesota plans to implement a program for engaging teachers in environmental education through in-school residencies, on-demand professional development resources, and an annual statewide teacher convening. The program will be implemented in two phases, with in-school water programs scheduled for the first half of the school year. Museum staff will use these opportunities to inform the design of professional development resources that address the needs of teacher leaders in environmental education. These lessons will be developed as on-demand resources that are accessible to teachers with busy schedules. The project will also connect teacher leaders in each region to create a community of practice around watershed education. The program will culminate in an annual teacher convening that will bring together all 20 teacher leaders in a virtual Unconference format, allowing participants to design their own agenda that fits their individual needs and concerns. The convening will also provide a forum for teachers to share their stories of success and challenges, building a community among the teachers that can continue beyond the project year.

Activity Milestones:

| Description | Approximate Completion Date |
|--|-----------------------------|
| Schedule In-school water programs at each site in the first half of the school year. | December 31, 2024 |
| Development of on-demand resources to overcome time and accessibility barriers. | January 31, 2025 |
| Connection of teacher leaders in each region to create a community of practice. | January 31, 2025 |
| Annual unconference that brings together all 20 teacher leaders for a virtual convening. | June 30, 2025 |

Activity 3: Evaluate the impact of these program components and iterate on their design based on this feedback

Activity Budget: \$12,000

Activity Description:

Evaluate the impact of these program components and iterate on their design based on this feedback. The Science Museum of Minnesota has an established system for evaluation of all school programs that would fit within this project. All assemblies and residencies include a post-experience survey for participating teachers which includes questions about the teacher’s perception of the experience, as well as the relevance and inclusivity of the program, in line with school programming and museum-wide goals. As this survey is already used across multiple programs, and often programs beyond assemblies and residencies, this will provide opportunities for comparisons to other programs and established benchmarks to ensure the program is meeting teachers’ needs. Evaluation of the teacher professional development will focus on how teachers participate in the different offerings, how useful and relevant they find those offerings, and how future programs can continue to provide support. The evaluation of the professional development will use new methods specifically designed based on the specific format, audience, and content of the professional development sessions. Feedback collected over the first year of the project will inform the design and implementation of the second year.

Activity Milestones:

| Description | Approximate Completion Date |
|---|-----------------------------|
| Post-experience survey for participating teachers on program relevance and inclusivity. | December 31, 2024 |
| Evaluation of teacher participation, usefulness, and relevance of professional development offerings. | May 31, 2025 |
| Evaluate program components and iterate on their design based on feedback. | June 30, 2025 |
| Use feedback to inform design and implementation of the second year. | January 31, 2026 |

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

Sustainability is fully integrated into the project's design. We will both address students' immediate environmental education needs and also increase teachers' capacities for watershed education in the future. On-demand teacher training modules and curated resources will live on after the project ending date. The project will also build teacher confidence for science education in their classrooms as educators will be supported by other teacher leaders in their regional networks and equipped with the necessary resources to continue teaching it for years into the future.

Project Manager and Organization Qualifications

Project Manager Name: Andy Chambers

Job Title: School Programs Specialist

Provide description of the project manager's qualifications to manage the proposed project.

Andy Chambers, School Programs Specialist in the Science Museum's STEM Education department, is an experienced program manager and science educator who has been with the Science Museum of Minnesota since 2018. Both his Master's degree in Education and diverse career experiences have prepared him to lead programs for public engagement through science education. He is well-versed in STEM trends and best practices and skilled in translating science content into compelling experiences for students and teachers. He consistently strives to understand the evolving needs of Minnesota educators and provide them with high-quality and accessible science resources.

Chambers is committed to supporting Minnesota educators and students, and is a leading force in the Museum's commitment to reaching all 87 counties and 11 tribal communities in the state. In his role as School Programs Specialist, Chambers provides strategic and operational leadership for the Science Museum's outreach programs including science assemblies, in-school residencies, and community events. He is a natural partnership builder dedicated to pursuing equity in education as demonstrated by his successes in convening educator advisory groups and leading SMM efforts in the National Science Foundation-funded "SABER: Spatial Ability and Blind Engineering Research" project, facilitating the creation of informal science content for blind youth who are often excluded from STEM learning and career pathways by educational materials designed only for sighted individuals.

Organization: Science Museum of Minnesota

Organization Description:

The Science Museum of Minnesota (SMM) is a science and technology center with innovative interactive exhibits emphasizing hands-on STEM learning, with scientific research, anthropological collections, and a nationally-recognized educational research and evaluation department. In addition to its 370,000 square-foot headquarter facility in downtown Saint Paul, the museum operates the world-class St. Croix Watershed Research Station in nearby Washington County. SMM is dedicated to collaborating with our community to create a world where everyone has the power to use science to make lives better.

The museum's STEM Education Department is composed of a highly-skilled team educators with expansive educational backgrounds, who both create and facilitate Science, Technology, Engineering, Art, and Math (STEAM) learning experiences for youth across a variety of contexts, including summer camps, field trip experiences, and school outreach. The staff also designs and delivers high-quality and transformative teacher professional development experiences. These professional educators are dedicated to placing the learner at the center of engaging program experiences, with a focus

on research-based STEM pedagogy, providing equity and access for all learners, and inspiring a passion and curiosity for STEM exploration.

Budget Summary

| Category / Name | Subcategory or Type | Description | Purpose | Gen. Ineligible | % Benefits | # FTE | Classified Staff? | \$ Amount |
|-----------------------------------|---------------------|---|---------|-----------------|------------|-------|-------------------|------------------|
| Personnel | | | | | | | | |
| Program Specialist | | The program specialist is responsible for overseeing the recruitment of teacher leaders in each region, the development and curation of teacher PD resources, and the planning and facilitation of the annual teacher gatherings. | | | 26% | 0.4 | | \$28,000 |
| Operations Coordinator | | The operations coordinator works in collaboration with the Program Specialist to contact teacher leaders, schedule in-person programs with schools, and support logistics for annual teacher gatherings. | | | 26% | 0.14 | | \$8,000 |
| Learning & Instruction Specialist | | The learning and instruction specialists will facilitate all in-person school programming and remote teacher leader gatherings. These staff will also curate professional development resources and make them available online for teacher leaders. | | | 26% | 1.18 | | \$83,000 |
| Materials Coordinator | | The materials coordinators help support in-person programming by maintaining and packing all materials and equipment for the in-school residencies. | | | 26% | 0.12 | | \$8,500 |
| Program Manager | | The managers supervise the specialists and coordinators, and supports staff scheduling and project management. | | | 26% | 0.12 | | \$11,500 |
| Museum Evaluator | | Museum evaluators will design formative and summative instruments that measure project impacts. This team will also help generate reports for the project. | | | 26% | 0.14 | | \$10,000 |
| | | | | | | | Sub Total | \$149,000 |
| Contracts and Services | | | | | | | | |
| Teacher Leaders | Sub award | We will recruit 5 teacher leaders per region to participate in in-school residencies with their students, online PD as individuals, and annual gatherings as regional cohorts. Each participating teacher would receive a stipend of \$500 for one year, with 20 teacher leaders participating per year of the project. | | | | 0.16 | | \$20,000 |

| | | | | | | | | |
|---------------------------------------|-----------------------|---|--|--|--|--|------------------|-----------------|
| | | | | | | | Sub Total | \$20,000 |
| Equipment, Tools, and Supplies | | | | | | | | |
| | Tools and Supplies | Water assembly and residency materials (consumables) | The Water Assembly and Water Residency programs use some consumable materials. This would also cover maintenance of the durable materials, and any repairs due to increased wear and tear on the demonstration models coming from increased statewide use. | | | | | \$1,000 |
| | Equipment | Additional Residency models, 16 | Increase the number of water demonstration models (such as wastewater and groundwater models) to add programming capacity for statewide reach. | | | | | \$4,000 |
| | | | | | | | Sub Total | \$5,000 |
| Capital Expenditures | | | | | | | | |
| | | | | | | | Sub Total | - |
| Acquisitions and Stewardship | | | | | | | | |
| | | | | | | | Sub Total | - |
| Travel In Minnesota | | | | | | | | |
| | Miles/ Meals/ Lodging | 13,000 miles over the project at \$0.655 per mile. One person traveling to each of 20 schools per year. | Travel is to provide direct, in-person facilitation of water assemblies and residencies. | | | | | \$8,500 |
| | Miles/ Meals/ Lodging | Meals and lodging for 47 overnights. \$100/night standard per diem lodging rate. \$59/day standard per diem M&I rate. One night for any school outside the Metro region, two for any school beyond 200 miles. | Travel is to provide direct, in-person facilitation of water residencies. | | | | | \$7,500 |
| | | | | | | | Sub Total | \$16,000 |

| | | | | | | | | |
|---|--|--|--|--|--|--|------------------------|------------------|
| Travel Outside Minnesota | | | | | | | | |
| | | | | | | | Sub Total | - |
| Printing and Publication | | | | | | | | |
| | | | | | | | Sub Total | - |
| Other Expenses | | | | | | | | |
| | | | | | | | Sub Total | - |
| | | | | | | | Grand Total | \$190,000 |

Classified Staff or Generally Ineligible Expenses

| Category/Name | Subcategory or Type | Description | Justification Ineligible Expense or Classified Staff Request |
|---------------|---------------------|-------------|--|
|---------------|---------------------|-------------|--|

Non ENRTF Funds

| Category | Specific Source | Use | Status | Amount |
|------------------|---|-----------------------------------|----------------------------|-----------------|
| State | | | | |
| | | | State Sub Total | - |
| Non-State | | | | |
| In-Kind | All indirect project costs are provided in-kind by the Science Museum of Minnesota (federal indirect rate 40.09% on all direct costs) | In-kind contribution of indirects | Pending | \$68,153 |
| | | | Non State Sub Total | \$68,153 |
| | | | Funds Total | \$68,153 |

Attachments

Required Attachments

Visual Component

File: [221c4428-2ea.pdf](#)

Alternate Text for Visual Component

Map of Minnesota showing our eight recruitment regions. Photos of students at in-school assemblies and residencies. Quote from a past participant in teacher professional development: "I have come out of it with a plan, tons of resources, and a better understanding of how to teach these skills in my classroom." ...

Optional Attachments

Support Letter, Photos, Media, Other

| Title | File |
|-------------------------------|----------------------------------|
| FY22 Audited Financial Report | 696d4375-195.pdf |
| Authorization Letter | 477072cf-8dd.pdf |
| FY21 990 Public Disclosure | 461b2fa4-b1b.pdf |

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

No

Does your project include the design, construction, or renovation of a building, trail, campground, or other capital asset costing \$10,000 or more?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services, as defined in Minnesota Statutes section 299C.61 Subd.7?

Yes

Do you certify that background checks are performed for background check crimes, as defined in Minnesota Statutes, section 299C.61, Subd. 2, on all employees, contractors, and volunteers who have or may have access to a child to whom children's services are provided by your organization?

Yes