

FY24 ANNUAL REPORT

Arts and Cultural Heritage Fund Legacy Amendment

Science Museum of Minnesota



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The Science Museum of Minnesota (SMM) is pleased to submit an annual report for the work we are doing with the generous appropriation of \$1.65 million for fiscal years 2024-2025 from the Arts and Cultural Heritage Fund of the Minnesota Legacy Amendment. This report details accomplishments in FY24 (July 1, 2023 – June 30, 2024) related to the following statutes: M.S. 3.303, Subd. 10, and M.S. 129D.17, Subd.2 (d). We are grateful for your support of our programs.

Statewide School and Community Initiative | July 1, 2023-June 30, 2024

FY24 Report, 7.74 FTE

In FY24, the Science Museum of Minnesota has remained committed to being a statewide asset for science and education centered in opportunity. We have worked to ensure our diverse community and audiences see themselves in science. This report describes what we have been able to accomplish.

We continue to serve the changing needs of our audiences, amplifying and expanding our access to research and collections, and developing the next generation of digital and in-person programs for families groups and schools, as well as building the capacity of schools and communities to address access and inclusion in STEM learning.

What we accomplished:

1. Learn about the needs of families, communities, and schools across Minnesota

The Science Museum of Minnesota is dedicated to addressing the needs of Black, Indigenous, and people of color and low-income communities by incorporating their voices into the development of educational initiatives and exhibits. Through ongoing community engagement, listening sessions, and data-driven approaches, the museum creates inclusive, relevant STEM programs that serve the diverse needs of communities across Minnesota.

a) Gather and synthesize existing internal and external data (since 2020) about Black, Indigenous, and people of color and low-income Minnesotans into an existing Community Needs Report document.

SMM developed an “Access Audience Community Needs” presentation that documented access audience demographic data, existing audience engagement strategies, and opportunities and gaps for engagement. “Access audience” is language used within the museum to identify community members who remain underrepresented in our experiences.

b) Hold one internal staff meeting in December 2023 to share community needs report document and identify gaps in knowledge.

SMM hosted an access audience data analysis meeting in January 2024, in which 30 SMM staff participated. Time was spent in the meeting sharing the “Access Audience Community Needs” presentation, discussing gaps in knowledge and opportunities to take actions to increase access for identified community members. The slide deck and recording were shared and made available to all staff members after the meeting.

c) Conduct at least two educator listening sessions designed to understand the needs of Minnesota K-12 educators. The listening sessions will be designed from the framework developed and successfully run in May of FY23.

While this was identified as an output at the outset of the project, SMM decided not to complete educator listening sessions this biennium. This decision was made in response to shifting needs, recognizing the limited time of teachers and their more pressing commitments. Evaluators relied on other data collection methods, like end-of-field trip and end-of-program surveys to gather insights and input from educators.

d) Conduct at least 25 conversations with Great Partner organization contacts to gather data on what their constituents’ needs are and how we can best support them through STEM programming. Great Partners are community organizations and schools that share the museum’s Great Tix income-based access rate with their clients and students. They have access to and understanding of the needs of their clients and students who are primarily Black, Indigenous, and people of color and/or low-income.

During this reporting period, SMM staff conducted 11 conversations with Great Partner organization contacts. All conversations were documented in writing.

e) Conduct at least six listening sessions with 60 adults from across communities in Minnesota. Sessions will be broken out by county or tribal nation - St. Louis county, Olmsted county, Cottonwood county, Clay county, and Fond du Lac Band of Lake Superior, Lower Sioux Indian Community, Red Lake Nation, and Upper Sioux Community. These areas have been selected based on our staff capacity and relationships we have with people and/or organizations in these communities.

During this reporting period, SMM received federal funds to complete this work. Unspent funds for this output were redirected to complete other workplan outputs. Using federal funds, SMM staff hosted 11 listening sessions with 85 adults from across communities in Minnesota. One listening session was held with members of the museum's Indigenous Round Table. This group had representatives from Upper Sioux Community, Leech Lake, and Prairie Island present for the session. The remaining 10 sessions had participants who resided in either Hennepin or Ramsey counties.

e) Synthesize the information gathered through outputs 3-5 and update the community needs report two times — once in May 2024 and once in May 2025.

The "Access Audience Community Needs" presentation has not yet been updated. This is largely due to the work occurring later than originally expected in the fiscal year and staffing changes within the department that developed the presentation. The presentation will be updated and reshared with museum staff in FY25.

f) Hold two internal staff meetings (one in June 2024 and one in June 2025) to share end-of-year report document with colleagues to inform their program planning.

The June 2024 internal staff meeting did not occur. This is largely due to the listening work occurring later than originally expected in the fiscal year and staffing changes within the department that developed the presentation. The presentation will be updated and reshared with museum staff in FY25.

Proposed Outcome Achievement

- Achieved proposed outcomes (Achieved 100% of outcomes)
- **Achieved most of the proposed outcomes (Achieved greater than 50% of proposed outcomes)**
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2. Amplify science through collaborations and increased access to the museum's research and collections.

By digitizing its vast collections, the museum is creating opportunities for both researchers and the public to explore and learn, fostering collaboration that preserves cultural heritage and empowers diverse communities to interpret and engage with scientific knowledge. Through collaborations with Dakota, Ojibwe, Hmong, and Mayan communities to ensure the museum's collections and programming are more relevant and accessible, the museum can ensure it reaches its goals.

a) Digitizing the Minnesota Ice Age collections: We digitized paleontology and archaeology collections that document Late Pleistocene and Early Holocene, a time of dramatic transition in Minnesota from a world of glaciers to a landscape of grasslands and forests.

SMM has imaged 250 Minnesota Ice Age objects and digitized 275 Minnesota Ice Age catalog records (paleontology) and 3,297 Minnesota Ice Age catalog records from Granite Falls, MN (archaeology) with the identification of 211 diagnostic artifacts.

b) Moving Beyond Digitization: Another way to respond to listening sessions is to work directly with culture-bearers. Expanding upon a project funded through a Minnesota Historical Society Legacy grant, SMM hired a Dakota Curatorial Fellow who worked with Dakota community members to more thoroughly document the Dakota collections beyond simple inventory and digitization.

SMM continued the position in this biennium. The Curatorial Fellow conducted focused provenance and content research on the museum's Dakota and Ojibwe collections, the Native American indigenous heritage seed collection, and artifacts from the Ice Age era. Additionally, SMM hosted collection and research lab visits from 10 different organizations/groups. This includes students, Tribal Historic Preservation Officers, and community elders.

c) Learning about the time of the Ice Age: SMM's Departments of Paleontology and Anthropology collaborated to learn more about the Ice Age time period in Minnesota. The Paleontology Department continues to explore productive areas for new material that will fill in gaps in our Ice Age fossil record. The Anthropology Department has investigated the evidence for cultural developments during this period of time.

SMM conducted fieldwork to learn more about the Ice Age in Minnesota with collaboration between our paleontology and anthropology departments.

d) Empowering non-scientists to understand and interpret our science and collections in ways that we never imagined.

In addition to the listening session feedback we received during the previous biennium, museum scientists and collection professionals learned more about our own biases as SMM participated in Equity in Science workshops led by the museum's IDEAL (Inclusion, Diversity, Equity, Access and Leadership) Center in FY23. This led to changes for two programs that empower people outside of the museum to share their interpretation of SMM's work with the public.

Community Curator program

Building on the successes of the Community Curator program pilot in FY23, SMM continued to invite community-based curators to create object displays in the museum. The purpose is to provide more inclusive access to the collections by inviting non-museum professionals, with identities represented within the collection to have a more active role in the interpretation of objects in the collections. Six individuals worked with staff from across the museum to create freely accessible displays of object(s) from the collections that include personally created interpretation. Cole Redhorse Taylor was the first Community Curator of this reporting year. SMM installed Cole's display in the museum lobby in January 2024. On March 12, 2024, he gave a curator talk at the museum. In April, the second Community Curator, Raquel Kaprosy's display was installed. Raquel gave a weaving demonstration for museum visitors on June 1, 2024.



Artist in Residence program

The Pine Needles Artist in Residency program welcomes creative individuals to the historic Pine Needles cabin located along the St. Croix River. This program seeks artists and writers of any discipline who strive to connect the complex world between art, the natural world, and the sciences, and share that understanding with the public. Each summer, four jury-selected artists are invited to spend two to four weeks immersing themselves in their creative endeavors, experiencing scientific fieldwork, gathering reference materials, and interacting with SMM's scientists. They also are given opportunities to interact with curatorial staff, the museum's collections, and laboratories. Artists are required to share their work with the community. Past examples of such events include a live blacksmithing demonstration, poetry readings, choral performance, book-making workshops, and naturalist programs. Artists have also increasingly utilized online platforms to communicate with broader audiences. In order to make this program more accessible to people of all socioeconomic statuses, we offer private lodging and stipends to the artists. Five artists were selected to participate in the Pine Needles Artist in Residency program for the summer of 2024.

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3. Develop and Deliver Educational Programs

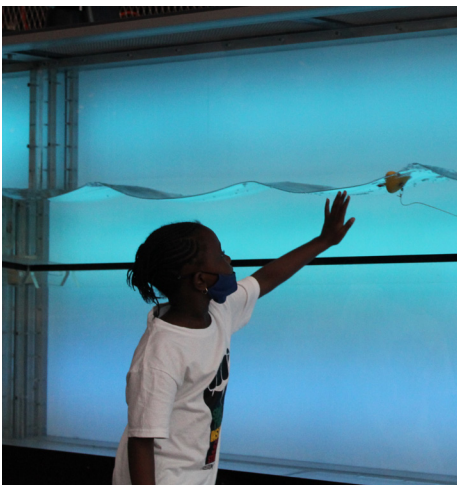
Informed by learnings from community and educator listening sessions (held as part of Project 1, "Learn about the needs of families, communities and schools across Minnesota"), the Science Museum of Minnesota developed innovative, accessible, and relevant STEM education programs centered in equity. Museum educators, scientists, and community partners cooperated in the development of learning experiences that feature the museum's extensive Minnesota-related collections. SMM communicates with statewide educators as these new resources become available, ensuring that there is widespread access and availability.

Educational Evaluation FY24

In FY24, evaluation continued to understand educators' experience, gauge student learning, and identify any areas for improvement for educational programs including field trips, assemblies, residencies, and automata kits. Evaluation activities also included tracking overall number of engagements, demographics of participants when available, and geographic reach. Key findings from the evaluation are available in the attached FY24 School Audiences Report, as well as additional information about the number of students and educators who engaged with Legacy programs in FY24.

a) Digitizing the Minnesota Ice Age collections: SMM digitized paleontology and archaeology collections that document Late Pleistocene and Early Holocene, a time of dramatic transition in Minnesota from a world of glaciers to a landscape of grasslands and forests.

SMM imaged 250 Minnesota Ice Age objects and digitized 275 Minnesota Ice Age catalog records (paleontology) and 3,297 Minnesota Ice Age catalog records from Granite Falls, MN (archaeology) with the identification of 211 diagnostic artifacts.



Highlights from this year include:

- There were 122,000 engagements with school programming this year; 20,000 more engagements than last fiscal year.
- School programming reached 84 counties in Minnesota and 4 Tribal Nations; nine more counties than last year.
- Across all school programs, educators consistently rated their experience as excellent or outstanding.
- Across all school programs, the majority of educators agreed that students learned something new from the program.
- Students who attended field trips at SMM were reflective of statewide demographics regarding race/ethnicity and students eligible for free and reduced lunch.

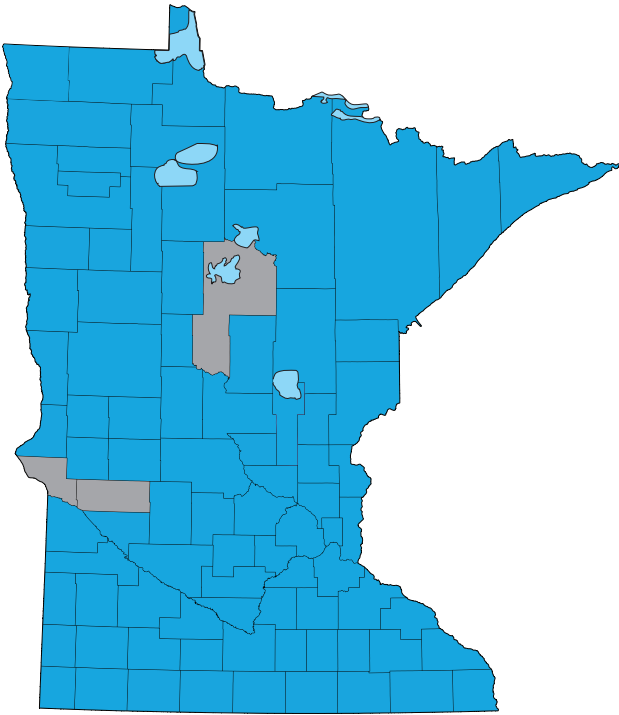
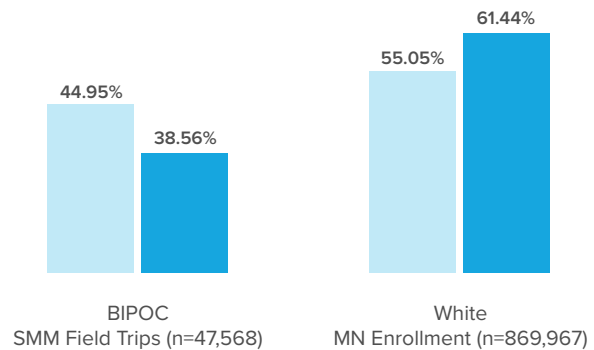


Figure 1. Overall counties reached in Minnesota by education programming.



a) The museum will develop and pilot new lessons in response to feedback gathered from educator listening sessions (both prior sessions and those described in Project 1). In the first year, SMM developed two programs on the nature of science and paleontology for grades 3-5:

Work on one new large group assembly for grades 3-5, focused on the nature of science and how scientific understanding of paleontology has changed over time, was piloted and ready for delivery. Assemblies are 50-minute stage programs presented by museum educators in schools (typically in gyms or auditoriums) in front of audiences of 150-250 students and their teachers. These programs introduce concepts through large demonstrations and storytelling, giving teachers a shared point of reference for their own classroom lessons or as a way to generate enthusiasm for a topic

Dinos 3-5 FY24 pilot evaluation:

All three respondents from the program strongly agreed that:

- That the experience was relevant to students.
- Students saw examples of how the scientific process works.
- This experience demonstrated how scientists learn new things.

When asked what the highlight of the program was, respondents mentioned:

- “I thought the student involvement was the highlight...great job! The kids enjoyed all the demonstrations.”
- “The kids really enjoyed the microraptor experiment! The more hands on, the better.”

Work began on one new in-person classroom residency class for grades 3-5 which would be a companion experience to the Dinos 3-5 assembly. Residencies are 30-minute in-classroom lessons for typically 30 students at a time, facilitated by museum educators. These give students hands-on experience with unique materials, used to reinforce concepts introduced in one of our assemblies.

b) The museum developed new Ojibwe story content for the automata engineering kits.

Automata kit evaluation (from schools report and from all three automata kits offered in FY24 — Hmong, Maya, and Ojibwe):

Educators agreed that kits were educational, relevant and fun.

All 10 respondents agreed or strongly agreed that:

- Students learned something new.
- The kits were relevant to their students.
- Students had fun using the kits.

Respondents saw value in the cultural story context of the Automata kits — eight out of 10 respondents felt the Automata kits helped their class see language and culture represented in STEM and science ‘somewhat’ or ‘a lot.’

“A lot of students are interested in STEM and hands-on projects. Especially since this project is relevant to their community, I believe they felt a connection to wanting to create the devices after watching the folk stories.”

–FY24 Automata Kit Educator

Respondents found all kits to be effective at engaging students in engineering.

All 10 respondents rated the cultural story context as somewhat or very effective at engaging students in engineering

c) The museum hosted educator open houses/previews coinciding with the MEA conference and weekend.

The museum engaged with more than 150 educators at the MEA conference and shared invitations both at the event and online to a full-day open house at the museum the following weekend.

d) The museum purchased an email list from an external vendor to support our email and online campaign.

This educator email list is used to expand SMM’s outreach to educators across the state. This list needs to be repurchased annually as educators transition through school districts and different roles. Having an up-to-date educator list ensures SMM is reaching the appropriate contacts and making them aware of the resources the museum offers.

e) The museum increased field trip liaison staffing by 0.26 FTE per annum to better meet the needs of arriving and departing school field trips.

Through listening sessions and educator feedback the Museum learned that additional support for field trips would lead to a much smoother experience for teachers, staff, and faculty members. This additional staffing has helped increase support by increasing our staff count at our education entrance during peak seasons.

f) The museum added 0.39 FTE per annum to support the creation of a new Educator Resource Specialist position that is focused on connecting Minnesota educators with museum programs and resources.

With this support, the museum hired an Educator Resource Program Specialist in Fall 2023. This role was responsible for hosting the MEA events, supporting the use of the educator email list, and distributing the automata engineering kits.

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4. Professional Development

Staff members from the IDEAL* (Inclusion, Diversity, Equity, Access and Leadership) Center at the Science Museum of Minnesota will meet the changing needs of Minnesota's STEM educators and Science Museum educators by providing professional development. The *IDEAL Center helps leaders who are serious about equity, access, diversity, and inclusion see their world differently and have the abilities, strategies, and will to make it more just and open. The center's scientific mindset and research-proven teaching and facilitation practices help participants become agents of change: transforming people, relationships, organizations, and our world.

a) Provided professional development to 50 Minnesota STEM educators and leaders in K-12 education throughout the state.

They attended PAGE programming. The education cohort attended PAGE (Peer and Gender Equity) programming for a total of 11 days to develop skills in systems thinking; practice strategies for facilitating highly productive teamwork and collaboration; and examine the relationships between identity, systems of oppression, power, and status in the context of STEM.

a. Cohort 13 foundation members (24 members) finished the 11 days of cohort works together

1. Saint Paul Public School
2. Minnesota Department of Education
3. Bloomington Public Schools
4. Minnesota Department of Education
5. Richfield Public Schools
6. Pearson
7. Anoka Middle School for the Arts, Anoka-Hennepin Schools
8. Anoka-Ramsey Community College / Minnesota State Colleges and Universities

b. Invited back veterans (11 members) for in-person programming

1. Oak Hills Elementary ISD194
2. Centennial ISD 12
3. Edina Public Schools
4. Great River School
5. Iowa State University/Office of Biotechnology (Not Legacy funded)
6. Southeast Polk High School
7. JFK Elementary School/ Lakeville Area Schools

c. Virtual programming is offered monthly to reach greater Minnesota!

d. Cohort 14 (35 members) have finished seven of 11 days of their foundations year

1. Minnesota Department of Education
2. District 196
3. Great River School
4. Pearson
5. Anoka-Ramsey Community College / Minnesota State Colleges and Universities
6. SMM: SEED Division, KAYSC, STEM Ed

e. PAGE veterans will return for Winter and Spring in-person colloquia (10 registered so far)

1. Worthington High School
2. District 196
3. Lake County Services Cooperative
4. Otter Tail Family Services Collaborative / NDSU
5. SciTech Institute
6. Iowa State University Office of Biotechnology
7. Lakeville Area Schools (JFK Elementary School)

PAGE experience (from schools report):

After participating in PAGE programming, participants gained knowledge and skills to implement equity in their work...

"I have a greater understanding of how to hold space for dialogue about race. I feel deeply motivated to continue engaging in conversations about race and its construction, and have more tools to explain my experience to others."

...appreciated **the staff and structure...**

"I have a greater understanding of how to hold space for dialogue about race. I feel deeply motivated to continue engaging in conversations about race and its construction, and have more tools to explain my experience to others."

...and valued the **opportunity for continued connection and engagement.**

It was helpful to hear from educators working in so many different levels and areas of the educational systems in Minnesota. I think the complexity is more apparent yet somehow less intimidating now.

"After every PAGE meeting, I feel a little bit stronger as a change agent."

b) Planned and delivered four days of focused professional learning for at least 24 Science Museum of Minnesota staff exploring equity in science and informal STEM learning.

a. This training cut across five different departments and included over 51 museum employees as they discussed race, inclusion, access, opportunity, and the intersectionality of these topics.

b. In March and June, a cohort of Senior Leaders and Directors from the Museum participated in additional programming and learned together on the topic of status.

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Information | July 1, 2023-June 30, 2024

The Science Museum of Minnesota gratefully submits this report on the work supported by the Arts and Cultural Heritage Fund of the Legacy Amendment in FY24. The museum's staff, Board of Trustees, and dedicated volunteers are proud of the work supported by Legacy project funding and look forward to continuing these important initiatives. The Museum welcomes the opportunity to provide tours of the museum to legislators and staff highlighting our world-class exhibits, school services, and collections vault! We would also be happy to answer any additional questions. Please contact Jon Severson for additional information at jseverson@smm.org or (651)221-9499.

Legacy project information is accessible online at: <http://www.smm.org/legacy>
<https://www.legacy.mn.gov/funds/arts-cultural-heritage-fund/reports/science-museum-minnesota>

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