



**Annual Report
Arts and Cultural Heritage Fund
Legacy Amendment
Science Museum of Minnesota**



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The Science Museum of Minnesota is pleased to submit an annual report for the work we are doing with the generous appropriation of \$1.2 million for fiscal years 2016-2017 from the Arts and Cultural Heritage Fund of the Minnesota Legacy Amendment. This report details accomplishments in **FY17: July 1, 2016 – June 30, 2017**. We are grateful for your support of our programs.

American Indian Programs

July 1, 2015 – June 30, 2017



FY17 Report, 2.6 FTE

The Arts and Cultural Heritage Fund has been instrumental in helping the Science Museum of Minnesota establish and expand our American Indian exhibit and programming, beginning with the purchase of the Bishop Henry Whipple Collection in fiscal years 2010-2012. The Bishop Whipple Collection consists of local and regional American Indian artifacts from the late 19th century. The resulting exhibit, *We Move and We Stay*, opened gradually from FY13 through FY17 and uses objects from the Whipple Collection, as well as other artifacts from the museum's American Indian Collection and new purchases or loans, to tell a story of the generations of Dakota and Ojibwe people who have made their homes in Minnesota. We relied heavily on our American Indian advisory council and new collaborations in shaping this exhibit. These advisors lent their voices and stories to the objects in this collection, as this is their story to tell.

In FY17, progress made toward our goals included:

Goal 1: Increase interest, understanding, and knowledge of Minnesota's Native American culture.

During this reporting period, we finished developing and installing the exhibition. Over the past year, we added objects and exhibit components, created a formal entry to the exhibition, added contemporary Native American art, and included more Dakota and Ojibwe voices.

These additions enhance the visitor experience, which in turn will increase interest, understanding and knowledge of Minnesota's Native American culture. There are 80 objects from the museum's collection in the exhibition, six interactive media components, and three physical interactive activities.



Interactive media kiosks engage visitors in the content through personal stories. Here visitors learn about the Dakota origins of many local places (left) and about how and why Native artists make jingle dresses and courting flutes (right). Other kiosks explore treaty rights and personal stories. For an example video visit: <https://vimeo.com/164109050/b2b6c8da05>



The exhibition juxtaposes old and new in several places. Here a *Bison occidentalis* from 9,000-4,000 BCE is displayed with an image of *Life Blood*, a painting completed by JoAnne Bird in 2013.

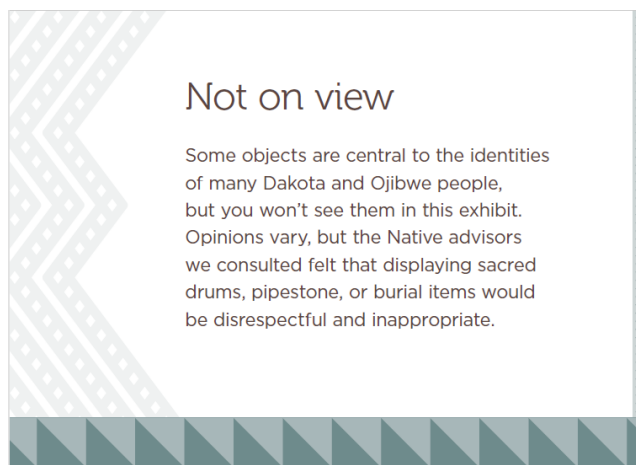


Generations of Dakota, Ojibwe, and other Native people whose home was here in Minnesota made the objects in *We Move and We Stay*.



Three popular interactive exhibit components include:

- 1) An opportunity for museum visitors to feel and hear the jingles used on the jingle dresses.
- 2) An activity where museum visitors create patterns similar to those found on traditional star quilts (above).
- 3) An exhibit where museum visitors assemble potshards to create a pot, much like the work of archaeologists.



Museum and project advisors felt some objects were better not included in the exhibition, and we wanted museum visitors to understand why. We installed a case with labels but empty object mounts to start the conversation.



We invited critique, and advisors Ethan Neerdaels and Jennie Kappenman shared their thoughts about the exhibition. This additional graphic layer illustrates the importance of presenting multiple perspectives.



The process of creating this exhibition has led to new relationships and opportunities. During the past year, several project advisors brought their students to the museum to see the exhibition and tour the

research and collections area. One group of students, led by Ojibwe project advisor Jason Bisonette, brought their drum and performed in the exhibition as part of their field trip to the museum.

Goal 2: Increase access to teaching resources on Minnesota's Native American culture.

Museum educators worked with Native advisors to develop a curriculum Educator Guide for classroom teachers that complements the exhibition. Classroom teachers, Native advisors and exhibit team staff participated in development. Developers referred to MN Academic Standards for English Language Arts, Social Studies, and Science to assess the best alignments of exhibits and suggested classroom activities to support teachers' learning goals. The curriculum Educator Guide is available to teachers via the museum's website (<https://www.smm.org/educators/standards/we-move-and-we-stay>).

The focus of the Educator Guide is STEM (science, technology, engineering, and math) concepts viewed through the stories behind objects and exhibits. STEM threads included in the student activities and classroom connections relate to:

- properties and characteristics of materials, especially materials made from natural sources;
- the process and products of engineering design;
- the seasonal work, natural processes, and interconnections of Native life and the natural world; and
- inherent mathematical structures and concepts.

STEM ideas and concepts are present throughout Native life, traditional and contemporary. Today thousands of Native Americans have careers in STEM fields. The Educator Guide and student activities spotlight contemporary Minnesotans in STEM careers who are Native American or work in Native communities. Each student activity page includes a STEM Spotlight, a quote taken from the longer interviews found in the Resources section that introduces the exhibit activity.

Goal 3: Increase awareness and knowledge of the behind the scenes conservation methods to care for the objects in the museum's collection.

A variety of museum professionals, volunteers, and interns staff the Visible Lab. They demonstrate current museum research and conservation related to the Native American objects in the collection. Over the past year, Minnesota archaeology has been the focus. Example demonstrations include: a volunteer sorting archaeological material from Stearns County; a museum researcher describing an archaeobotanical study of the Energy Park site in Red Wing; and museum staff cataloguing and rehousing the Silvernale Collection from the Red Wing area. Digitization work focuses on objects in the MN Native American Archaeology collection. To date, we have digitized and updated nearly all of the records for ethnology objects in the museum's Minnesota Native American Collection. To finish the project, we focused on preparing the database to enable digitization of the museum's Native American Archaeological Collection.

As of June 30, 2017, the direct expenses for this project are \$197,086.56. The administrative costs are \$10,334.05. Other funds for the project were not needed or received in FY17. We are grateful for the continued support from the Arts and Cultural Heritage Fund to realize this project-from purchasing the Bishop Henry Whipple Collection, to completing the exhibit.

FY17 Report, 4.6 FTE

The Science Museum of Minnesota continues to make it a top priority to enhance our programs and offerings to schools and teachers throughout the state. With previous Legacy support, we undertook a museum-wide evaluation of our offerings to schools to determine the best way to serve student and educator audiences. Current Legacy support of our second project has given us the ability to invest in new programs and resources that directly address academic standards and ensure high-quality educational experiences. Progress made toward project goals includes:

Goal 1: Increase access to museum programming and resources for schools throughout Minnesota.

- All 87 Minnesota counties were served with Science Museum programming by the end of the school year. This fulfilled our goal to reach every MN county.
- Our field trip attendance was 90,328 participants.
- We served over 68,000 students with school outreach. Our commitment to reach every Minnesota county ranges from: presenting assemblies at the southwest Minnesota Environmental Fair to working with the Warroad School District to bring residency classes to students in a one-room school house at Angle Inlet - the northernmost school in Lake of the Woods County.
- To increase access we utilize an Education Opportunity Fund. Generous private donors provide scholarships and reimbursements for school and youth programs; eligible expenses include: transportation, admission, and program fees. This year the Fund has supported the participation of 23,500 youth in museum programs, in their schools or communities, and through out-of-school science experiences.
- We offer a reduced rate for field trips for schools with 50% or more of their students approved for free and reduced-price meals.

Goal 2: Support students, teachers, schools and districts to provide high quality STEM learning experiences.

We continue to revise existing and develop new learning experiences aligned to Minnesota Academic Standards for Science informed by best practices for culturally relevant science education pedagogy and informal learning contexts to engage all learners.

Field Trips

Educator Guides

We have completed the *RACE: Are We So Different?* Educator Guide, which incorporates feedback gathered from teachers in 2016. The guide is available for download at our website at:

<https://www.smm.org/educators/standards/race-are-we-so-different>. There have been more than 1,523 page views of the RACE Educator Guide this year. The RACE guide is the most frequently used SMM Educator Guide. Teachers are loading the student pages from the guide onto tablets or printing out student pages so that students have structure and guidance as they move through the exhibition, often using our student pages as templates to innovate and adapt lessons for their students.

Standards Matrix

The standards matrix was updated to reflect exhibits presented during the year, such as *Sportsology* and *Mythic Creatures*. Roughly a quarter of field trip visitors report using this resource. More information is available at <https://www.smm.org/educators/standards>.

Field Trip Program Packages

- **Big Weather Experience:** SMM continues to offer the *Big Weather Experience* program package. This standards aligned package includes: exhibit exploration, the Omnitheater film *Tornado Alley*, and a Science Live presentation of *Storms on Stage* which brings weather science to life. Over 4,700 students from 63 schools participated.
- **RACE: Are We So Different?:** For a second consecutive year, SMM offered the *RACE* program package: 6,800 students from 69 schools participated.
- **Flight of the Butterflies Omnitheater Film:** In the fall, SMM offered a school audience only showing of the *Flight of the Butterflies* in response to teacher requests. 2,388 students from 36 schools saw the film which supported curriculum goals and standards.

Outreach

"A terrific opportunity for students who live outstate and don't always have the opportunities to experience the museum with their families. The program ignites their imaginations and helps them to realize what they already know and need to know about their home and environment."

- Teacher Feedback, School Outreach Program

We gathered teacher feedback on topics that would best support curriculum content. In response, we developed and revised school outreach programs, as described below.

Assemblies

After documenting numerous requests to present our *Solids, Liquids and Gases* program to grades K-2, we created a K-2 assembly and revised our grades 3-5 assembly. We developed new standards, aligned learning goals, revised and developed demonstrations, pilot tested, and made final edits before completing the project and presenting to schools.

Residencies

We added *Sound* and *Dinosaur* themed residency classes for our K-2 audiences. We also created an exciting new *Investigative Science Residency* in which students work together to solve an engaging mystery about Buster the school dog. Students become forensic scientists, examining clues such as animal tracks, mysterious chemicals, fibers, scat and teeth marks. Through hands-on engagement – gathering, testing, and examining evidence - they piece together the story and solve the mystery of where Buster has been!



Goal 3: Engage students, teachers and schools in dialogue about race and identity.

In October 2015 the museum brought back *RACE: Are We So Different?* - one of its most powerful exhibition experiences - to help learners of all ages examine the biology, history, and contemporary lived experience of race and racism in the United States. The exhibition is available for all school field trip visitors. Several initiatives were advanced in FY17 around the RACE exhibition as described below.

Science House Teacher Professional Development Race Institutes:

The Science Museum offers intensive leadership-based teacher professional development training facilitated by our Science House Professional Development Group. We offer rigorous, innovative, research-based expertise and programming developed with support from the National Science Foundation. The Science House Professional Development Group curriculum focuses on unpacking complex systems of identity. We address equity, inclusion, race, class, gender, disability, sexual orientation, and systems change. Science House has a wealth of experience in helping organizations transform their institutional culture through professional development.

- Using the exhibition as a starting place, weeklong Race Institutes were dedicated to addressing disparities through a distributed leadership model of professional development. STEM investigations, discussions, and readings were designed around the Science House's Framework for Access and Equity. Participants explored how students' racial identities intersect with other identities such as gender, disability, and class. The Race Institutes provided professional development for teachers to help create inclusive learning environments.
- The impact of the Race Institutes on participants is significant: 100% of the assessment items show statistically significant positive change.
- Over 277 educators from across Minnesota applied for a spot; 42 educators from 13 schools/districts in seven counties were selected and participated. Two institutes were held in July and August 2016.

Race Program Package for Schools:

- As noted previously, the Race Program Package was developed and offered to schools with support from the Legacy funding.
- The package starts in the auditorium with a presentation of *Race to Finish Line*, a 15-minute, two-actor performance which highlights the challenges of talking about race even between friends. Following the performance, actors engage students in a short reflective discussion.
- Students then move into the RACE exhibition to interact with the exhibits.

Race Program Package Service Statistics:

- Total schools served: 69
- Total students served: 6,800
- Days of programming: 38 days
- Number of performances: 124

RACE: Are We So Different? – Program Partnership:

- In partnership with the Penumbra Theatre Company, the Science Museum received grant funding from the James L. & John S. Knight Foundation to develop interactive race workshops taught by Penumbra's teaching artists for students to process and deepen their learning from the RACE exhibit.
- This partnership between SMM and Penumbra has engaged 4,000 students.

- Teachers and schools have found this program to be an instrumental tool in their school climate initiatives. Teachers have found the RACE exhibition and workshop crucial to furthering student learning in their content area.
- One teacher remarked, “Thank you, again and again...our 7th grade students learned so much and had so much FUN while learning!”

Goal 4: Communicate effectively with Minnesota teachers, schools, and districts about museum programs, resources and professional development opportunities.

We focus efforts on clear and meaningful communication with Minnesota teachers through print, email, web, personal contacts, and more. Our goals are not only to market our programs and resources, but for teachers to feel valued for being the spark for science education and for them to feel a sense of belonging with the museum.

- We reach 11,000 teachers on a bi-weekly basis with emails that include classroom tips and inspiration, in addition to programming and field trip information. These emails have high open and engagement rates.
- The *SciEd* web page offers an accessible way for educators to engage with our programs. There have been over 4,051 page views to our *SciEd* web page and over 14,349 page views for field trip information.
- We created a new Teacher Resource Guide for the 2016-2017 school year. This guide included information on museum programs, school-based programs, and our Science House Teacher Professional Development program. This piece was mailed to 10,000 teachers across the state of Minnesota.
- Our School Liaison, Kalia Vue, presented at conferences and events. Examples include the MN Field Trip Expo and MN State Fair. The School Liaison continues to grow relationships with teachers through one-on-one communication, conferences, teacher previews, meetings, and other engagement strategies.

We are inspired by these successes, especially the milestone of reaching all 87 counties in Minnesota through field trips and school programs. The impact of this work will continue with Legacy funding received to support work during the FY18-19 biennium.

As of June 30, 2017, the direct expenses for this project are \$405,563.65. The administrative costs are \$18,521.00. Additional funding for the School Network project includes gifts from private donors totaling \$717,150. The support provided by the Arts and Cultural Heritage Fund has given us the ability to invest in new program development and create new resources that directly address academic standards and ensure teachers and students have high-quality educational experiences with Science Museum of Minnesota programs.

Information

July 1, 2015 – June 30, 2017

The Science Museum of Minnesota is pleased to submit this report on support from the Arts and Cultural Heritage Fund of the Legacy Amendment. We are proud of our work on these projects and look forward to continuing the important work that these funds make possible. The museum would be thrilled to provide a tour of the museum, our school services or American Indian programming and we would be happy to answer any additional questions. Please contact Jon Severson for additional information: jseverson@smm.org or 651-221-9499.

Legacy project information is accessible online at:

<http://www.smm.org/legacy>

<http://www.legacy.leg.mn/projects/2016-2017-science-museum-minnesota>

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