



Museums for America

Sample Application MA-249631-OMS-21
Project Category: Community Anchors

University of Montana (spectrUM Discovery Area)

Amount awarded by IMLS:	\$250,000
Amount of cost share:	\$250,002

The project description can be viewed in the IMLS Awarded Grants Search:
<https://www.imls.gov/grants/awarded/ma-249631-oms-21>

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of Completion

When preparing an application for the next deadline, be sure to follow the instructions in the current Notice of Funding Opportunity for the grant program and project category to which you are applying.

Project Narrative

“**Transforming Spaces**” is designed to foster a more inclusive, culturally responsive Third Place for Missoula’s significant urban Indian population while better meeting the needs of all learners in our community. In an effort to positively transform the University of Montana spectrUM Discovery Area’s museum and the larger library-museum complex where it is situated, and recognizing the transformative power that museum experiences can have for people of all ages, this project will deepen and explore cross-cultural, collaborative approaches to STEM and role-model engagement while weaving Native science experiences throughout spectrUM’s exhibits and programming. All of these efforts pursue the end goals of building richer understanding and connection between Native and non-Native museum visitors, closing persistent opportunity and achievement gaps in our community, and ensuring that all Missoulians—and especially K-12 students—feel a sense of belonging in museums, higher education, and STEM.

spectrUM’s relocation in the spring of 2021 to the new Missoula Public Library presents a unique opportunity to enhance spectrUM’s role as a vibrant, inclusive Third Place for Missoula (Oldenburg, 1989 and Pastore, 2009). Within this new location, where for the first time ever spectrUM will offer totally free admission, this project will create a suite of culturally responsive museum activities, role-model engagement experiences, and professional development trainings co-designed with Montana tribal partners to better engage Missoula’s urban Indian community.

The project leverages spectrUM director Jessie Herbert-Meny’s (PD) strengths in informal science education and deep partnership history with Montana’s tribal communities, along with the project’s tribal engagement director Shane Sangrey’s expertise in Native American student persistence and success, inclusivity, and tribal community engagement.

The project team will collaborate with spectrUM’s education team and advisory groups to design, pilot, and implement a suite of hands-on activities and accompanying curriculum that engage museum visitors with Native science experiences. Emulating existing efforts by the Smithsonian’s National Museum of the American Indian, this project will also engage tribal role models on the museum floor and partner with tribal elders across Montana to create a library of videos, sharing their stories. Project activities and videos will be made available for use by tribal partners, K-12 schools, and other organizations. For Montana K-12 teachers, the project will offer professional development designed to provide new approaches to fulfilling the state’s constitutional mandate of Indian Education for All.

The project’s activities and role-model engagement will also travel to spectrUM’s [EmPower Place](#), spectrUM’s free family learning center at Missoula Food Bank & Community Center. A 2019 recipient of an “Edgie” award for visitor experience from the Association of Science & Technology Centers, EmPower Place was seeded with an IMLS National Leadership Grant for Museums and engages over 15,000 Missoulians annually, including a significant urban Indian population (Beczkiwicz, 2016; Missoula Food Bank, 2015).

Formative and summative external evaluation will assess the project’s impact on visitors’ and role models’ experiences at spectrUM and their perceptions of spectrUM as a culturally inclusive space and on the teaching practices of K-12 teachers who participate in the project’s professional development.

Project Justification

What need, problem, or challenge will your project address, and how was it identified?

This project primarily responds to the need for an inclusive, culturally responsive Third Place for Missoula’s urban Indian community, as well as to the need for opportunities for all children to engage positively with Native science and cultural heritage (Polimédio, 2017 & Putnam, 2016). By integrating positive Native representation and role models into spectrUM Discovery Area and EmPower Place, the project will help Native children see themselves reflected in spaces where their identities had formerly been occluded. This will be part of an effort to serve and empower Native people in Missoula and our tribal partners’ communities. Native youth benefit from exposure to role models who look like them and have similar life experiences to empower them to see themselves as capable and worthy of also achieving success in academia and the STEM fields (Swaney, 2016). Guided by the belief—grounded in research—that all children benefit from inclusivity and diversity, this

project will engage all of our museum visitors with the cultural heritage of Montana's tribes and their contributions to science (Buck et al., 2008; Techbridge, 2013; and Weber, 2011). Finally, the project's K-12 teacher professional development will help educators fulfill Montana's constitutional mandate of Indian Education for All.

In the project's efforts to "transform space" to be inclusive and responsive, the project team will study and import best practices developed by the Smithsonian's National Museum of the American Indian in engaging both Native and non-Native visitors with Native science, culture, and role models. As part of the project's planning efforts, members of the project team will travel to the Smithsonian to observe and learn from their model. We will also draw on principles identified by Gregory Cajete on Indigenous education and epistemology (2015); on best practices for engaging in research with Indigenous communities (Wilson, 2008; Straits et al., 2012), to guide our collaborative work with Native communities; and on published findings from relevant projects such as the Native Universe Project and Salish Kootenai College's NSF-funded Indigenous Research Center (Pete, 2019).

This project also draws on findings from NSF-funded research from the K^wul 'I'tkin Maker Truck project, in which spectrUM, the Confederated Salish and Kootenai Tribes, and SciNation co-designed a mobile, cultural makerspace. Research on the project suggested that co-designing with communities results in more authentic, higher-impact learning experiences for children and that K-12 learners on the Flathead Reservation were more likely to select a culturally relevant activity over a "conventional" making activity; were likely to spend a longer time engaging in the cultural STEM activity; and were likelier to engage in the cultural activity with an adult than with a conventional activity (Truitt et al., 2018). Additionally, we have learned through the K^wul 'I'tkin Maker Truck project and through our IMLS National Leadership Grant for EmPower Place to prioritize relationships and build trust with partners (Herbert-Meny et al., 2020), that co-designing is sustained by a positive collaborative environment (Richter, 2019), and that higher education institutions will better serve their community when they give the keys to the community to design and take ownership (Truitt et al., 2018).

Who or what will benefit from your project and how have they been involved in the planning?

This project will deepen and explore cross-cultural approaches to STEM and role-model engagement while embedding Native science throughout spectrUM's exhibits and programming. This project will engage:

- Missoula's urban Indian community (approximately 1,800 people), as well as children and families from the nearby Flathead Reservation, where spectrUM and its SciNation advisory group regularly engage the reservation's 1,400 tribal youth through in-museum and mobile programming (U.S. Census, 2018).
- All of Missoula's children and families: spectrUM anticipates 80,000 museum visitors annually at our new location at Missoula Public Library, as well as 15,000 visitors annually at EmPower Place.
- An estimated 20 teachers who will participate in Indian Education for All professional development. Participating teachers will in turn be equipped to share culturally relevant and appropriate activities and lessons that engage their students with the cultural heritage of Montana's Native American tribes.
- An estimated 10 tribal elders from Montana's reservations who will participate in creating project films and 30 additional Native role models who will lead activities in the museum.

These beneficiaries have been involved in planning through initial discussions with All Nations Health Center, who serves Missoula's urban Indian community, with the Missoula County Public School's Indian Education department, and with planning meetings with spectrUM's SciNation Advisory Group and project advisors (see letters of support).

How will your project advance your institution's strategic plan?

Within the University of Montana's current strategic plan, this project advances the "Partner with Place" priority by developing museum engagement that positively engages UM's community and state, including Indian Country. Within spectrUM's internal strategic plan, the project advances the goal to collaborate and build relationships with partners in our new home in Missoula Public Library, and by providing opportunities for our museum to engage positively with tribal partners across the state of Montana. This project also builds upon the University of Montana's commitment to providing a better understanding of First Peoples of Montana.

In November 2017, the Montana University Systems Board of Regents adopted Indian Education for All, a Montana Constitution statute previously focused on K-12 education, that engages all Montana students with Montana tribes' cultures and ways of knowing.

How will your project address the goals of the Museums for America program and align with the project category you have chosen?

This project addresses the Museum for America goal of promoting lifelong learning by building on spectrUM's role in Missoula as a trusted source for information and community dialogue, as we provide continuous learning for people and families with diverse backgrounds and needs. Within the Community Anchor category, this project will strengthen spectrUM's ability to serve our community by bridging Native and non-Native ways of knowing and being. This project will allow spectrUM to build our partnerships with Montana's native communities to design and strengthen Native science experiences in our museum which specifically responds to the needs of Missoula's urban Indian community while also benefiting all visitors.

Project Work Plan

What specific activities, including evaluation, will you carry out?

Building on spectrUM's long history of collaborating with tribal partners and communities, PD Jessie Herbert-Meny, project tribal engagement director Shane Sangrey (Chippewa-Cree; diversity specialist at the University of Montana), spectrUM's education team, and tribal partners will develop programming that engages visitors with Montana tribes' ways of knowing, including Native scholars' current research at UM. As part of the design process, the project team will study existing models for effective museum-tribal engagement and will visit the National Museum of the American Indian to explore and emulate their approach to tribal role-model engagement and programming.

Working with spectrUM's SciNation advisory group on the Flathead Reservation and a project advisory group of partners from across Montana's reservations and Tribal Colleges, the project team will collaborate with elders, scholars, and leaders in Montana tribal communities whom Herbert-Meny and Sangrey will invite to be filmed in short videos sharing stories of Montana tribes' ways of knowing. Videos, to which participating tribes will retain copyright, will be edited to be shared on a rotating basis in spectrUM's museum on the 2nd (children's) floor and in Missoula Public Library's Montana Room on the 3rd floor.

Additionally, the project team will invite Montana tribal role models to engage with visitors at spectrUM for 15 days of each project year. spectrUM currently hosts UM scholars, STEM professionals, and community members as special guest role models regularly in our museum and at EmPower Place, and we find that role models enjoy sharing about their research and experiences with the public. We will recruit Native role models and elders to share their experiences with museum visitors, ensuring that we have at least 5 role model visits each year at EmPower Place and 10 role model visits each year at spectrUM's museum at the Missoula Public Library. For example, a guest elder could share his or her tribe's traditional seasonal lifeways; a Native role model could lead a traditional game with visitors; or a Native scholar from the University of Montana could engage visitors with their research and personal educational pathway. Aaron Thomas, a chemistry professor and director of Indigenous Research and STEM Education at the University of Montana has served as a special guest to lead students through chemistry activities and is excited to continue this partnership (see letter of support).

With our advisors and tribal partners, the project team will co-design a suite of 10-12 hands-on activities and an accompanying curriculum book that engages visitors with Montana Native heritage and current research by UM Native scholars. Activities will incorporate supplies developed by Montana fabricators whose products are widely used by tribal and K-12 educators. Tim Ryan, a member of the Confederated Salish and Kootenai Tribes, produces replicas such as willow fish traps, traditional fire kits, and wood and rawhide snow shoes, traditional technologies that museum educators will use to engage visitors with Native ecology and sense of place. Georgianne Fish, a K-12 teacher in Great Falls, Montana, creates traditional game sets that teach Native values of honor, respect, and responsibility while engaging players with the spiritual, mental, and physical survival skills of the past. Native Teaching Aids, a company based on the Flathead Reservation, produces cards,

games, and other products designed to teach Indigenous cultures, languages, and histories. The project team will work with tribal partners to place custom orders for these supplies. (Please see price lists in Supporting Documents.)

While this project's specific activities will emerge from the co-design process, the following are examples of possible activities to be developed by spectrUM's education team and tribal partners:

- One of the most popular activities in spectrUM is building boats out of recycled materials to float down our Clark Fork River water table. This place-based activity could be adapted with the guidance of tribal elders and boat builders from the Flathead Reservation, who are working to resurrect this craft locally, so that children could learn how dugout canoes were constructed and used on Montana's waterways. Possible science extensions include buoyancy, boat hull engineering and design, and river and lake ecology.
- With watershed programming and exhibits embedded throughout the library-museum complex, signage can be created to share tribal stories and ecological knowledge. Bilingual signage, already in place on the Flathead Reservation, could share Salish place names like nmisuletk^w (Missoula's Clark Fork River).
- In the makerspace, a project team could work with Tim Ryan to share how willow fish traps are created and the engineering design principles behind their construction. This activity would create rich entry points for language and storytelling.
- Both spectrUM and Missoula Public Library already incorporate board games into their programming and collections. Project activities could include game events offered in collaboration with Native Teaching Aids; making the games available for checkout or free play in the museum; and inviting Native role models to play these games with visitors.
- Other elder-engagement programming could include a guest elder sharing his or her tribe's traditional seasonal lifeways, many of which are still practiced, or elders could lead traditional storytelling in the appropriate season for their tribe during Missoula Public Library's early-childhood story times and adult book groups.

Each year, the activities and curriculum book will be made available to the project's advisory group and partners, allowing visitors at the tribal college libraries at Blackfoot Community College, Salish Kootenai College, Stone Child College and at the People's Center to experience project activities, furthering the reach of the project. In year two, the project team will also create a kit of the native science activities and curriculum which will be available to check-out through the Missoula Public Library and available across Montana through the Inter-library loan program.

In years two and three, Sangrey and Herbert-Meny will offer an 8-hour professional development training to help K-12 schools and educators fulfill Montana's Indian Education for All mandate and provide teachers with project activities and videos that incorporate Native science. Trainings will build upon Montana's [Essential Understandings Regarding Montana Indians](#) and will engage teachers in the project activities and curriculum. Teachers will receive stipends for participation and OPI renewal units. Ten teachers who participate in these trainings each year will learn new approaches and resources for integrating Indian education into their own classroom and will receive a curriculum booklet developed by the project team with activity guides and additional resources. Sangrey will also provide a cultural responsiveness training for spectrUM's education team, led annually with museum program manager Caitlin Ervin.

Dr. Beth Covitt, spectrUM's head of science education research and evaluation, will serve as project evaluator, providing both formative and summative evaluation. The formative evaluation will document key project activities to provide timely feedback so that activities can be compared with the rationale and plan and refined over time. In particular, Covitt will use surveys with project partners, adult visitors, and role models (different instruments with each group) to gather information about what respondents like about the activities and exhibits, perceptions of the impact of the activities and exhibits as well as of cultural inclusiveness at spectrUM and EmPower Place, suggestions for improvements, and what messages they take away from their experiences. Covitt will conduct surveys with teachers participating in project professional development to document the quality, value, and usefulness of the professional development to their teaching, as well as their

perceptions of culturally responsive education and of the museum. Covitt will develop formative evaluation memos twice yearly and meet with project leaders to discuss how evaluation information can support project responses to the perceived strengths and weaknesses of the activities, exhibits, and professional development.

The summative evaluation will answer the following key questions:

- What is the nature and quality of visitors' experiences with the project's exhibits and activities? In what ways do these experiences impact visitors' perceptions of spectrUM and EmPower Place as culturally inclusive places?
- How do the role models perceive the impact of the project? In what ways do they see the project as making spectrUM and EmPower Place more culturally inclusive? What suggestions do they have for continuing development in this regard?
- What is the contribution of the project to teachers who participate in the professional development, and how do the teachers perceive the professional development to impact their classroom practice, their understanding of culturally responsive science education, and their perceptions of spectrUM as a resource for culturally responsive science education?
- What lessons learned from this project could be useful for the broader museum and library fields?

For the summative evaluation, Covitt will draw on all of the formative data collected, as well as final interviews with project leaders and a sample of staff and partners about the project's reach and lessons learned. In addition, she will conduct follow-up surveys with teachers who participated in the professional development to document the extent to which and the ways in which the professional development has impacted their practice over time. Covitt will report evaluation data as required by IMLS and to document project outcomes. Institutional Review Board approval for the evaluation will be obtained so that findings may be shared as part of project dissemination. A final report will summarize the contributions of the project, as well as the broader lessons learned for the field of museums and libraries.

What are the risks to the project and how will you mitigate them?

- The possibility that the children and families this project most intends to reach—specifically American Indian and low-income families—may not visit spectrUM. We will mitigate this risk by heavily marketing spectrUM's new free-admission policy in the library, including through outreach through All Nations Health Center and to family resource centers at Missoula public schools. We also anticipate that our new location within a public library and by including programming at EmPower Place will further broaden our reach. We will additionally mitigate this risk by targeted marketing on social media and through community calendar listings and spectrUM's e-newsletter.
- Cross-cultural collaboration carries the risk of miscommunications or misunderstandings between Native and non-Native staff and partners. We will mitigate this risk by consciously striving to maintain a working environment that is culturally safe, including by working with Sangrey to develop an annual training designed to increase spectrUM employees' awareness of tribal issues and the cultural backgrounds of Native people, as well as to help participants recognize and interrupt their implicit biases and behaviors. These efforts will inform a written diversity and inclusion section in spectrUM's handbook.
- Possible challenges in recruiting and hosting Montana tribal elders as special guests in the museum: Sangrey has done similar work previously and has deep connections that will help him recruit tribal elders and ensure that both the tribal elders and spectrUM's visitors benefit.

Who will plan, implement, and manage your project?

Jessie Herbert-Meny (PD), spectrUM's director, will lead the project, focusing particularly on i) overseeing spectrUM's tribal partnerships, in collaboration with Sangrey; ii) overseeing the design and implementation of the project's exhibits, activities, role model engagement, and K-12 teacher professional development; iii) disseminating the project's impact and approach; and iv) ensuring that evaluation iteratively informs project engagement throughout the grant period. Herbert-Meny, who has led spectrUM's education programs since 2008 and received her master's in education in 2019, was co-PI on spectrUM's recent NSF project that developed the K^wul 'I'tkin Maker Truck and is currently PD on the IMLS National Leadership Grant to develop a model for museum to engage rural and tribal communities in making and tinkering. Herbert-Meny has a

decade of experience guiding spectrUM's community-based approach to STEM engagement and oversees its partnerships with tribal communities, including the SciNation advisory group on the Flathead Reservation, and developing professional development experiences for teachers about culturally responsive education and hands-on science curriculum (see an example of the K^wul 'I'tkin curriculum booklet in supporting documents).

Shane Sangrey, the project's tribal engagement director, will collaborate with Herbert-Meny to oversee the project's tribal partnerships and engagement and will additionally be responsible for project's video engagement with elders, including ensuring that tribes retain copyright and have access to the videos for their own use. Sangrey will oversee all elder engagement at spectrUM and will collaborate with Herbert-Meny to ensure that all project deliverables are culturally relevant and appropriate, as well as to develop a cultural responsiveness training for spectrUM staff and open to all staff and volunteers in the Missoula Public Library complex. In addition to his position as diversity specialist with UM's College of Health, Sangrey is a spectrUM advisory board member. He is a member of the Chippewa Cree Tribe and has over a decade of experience developing and implementing programs that positively engage elders with youth and the broader public, both in his roles at UM and previously at Stone Child College on Montana's Rocky Boy Indian Reservation.

Beth Covitt, spectrUM's head of science education and evaluation, will serve as project evaluator, providing both formative and summative evaluation. Covitt has experience with Montana tribes on education efforts, including through serving as program manager for the NSF-funded Big Sky Science Partnership, which partnered Montana tribes and universities to provide culturally-responsive teacher professional development.

Dr. Nathalie Wolfram oversees UM's role-model program and will recruit Native role models from the University of Montana to engage at spectrUM's sites. spectrUM museum manager Caitlin Ervin, with over three years of experience managing programs at spectrUM and engaging with role models will lead project activities on the museum floor and at EmPower Place, purchase supplies, oversee spectrUM's museum educators, will assist Dr. Wolfram in recruiting Native role models, and will engage role models in the museum. A student intern from UM Media Arts will edit all project videos. spectrUM educators will lead activities developed by this project with visitors in the museum and at EmPower Place.

Will partners be engaged and, if so, for what purpose?

spectrUM has a history of developing reciprocal relationships with partners. By design, this project is intended to engage Montana tribal partners to guide activity design. spectrUM's SciNation advisory group partners and additional project advisors will connect the project with tribal elders and community members on Montana's seven reservations to help develop the videos and provide feedback and their expertise on the project. SciNation includes Steph Gillin (Confederated Salish & Kootenai Tribes - CSKT - Information and Education Office), Dr. LeeAnna Muzquiz (CSKT Health), Whisper Camel-Means (CSKT Wildlife Biology), Michelle Mitchell (CSKT Education), Dr. Jonathon Richter (Tech4Good), Aric Cooksley and Amy Vaughan (Boys & Girls Club of Lake County and the Flathead Reservation), Marie Torosian (People's Center) and Cindi Laukes (UM Neural Injury Center). Additional project advisors include Dana Kingfisher (All Nations Health Center), Michael Fast Buffalo Horse (Blackfeet Community College), Joy Bridwell (Stone Child College), and Tim Ryan (Salish Kootenai College). Letters of support are included in supporting documents.

When and in what sequence will your activities occur?

Please refer to the Schedule of Completion for a detailed project timeline.

What time, financial, personnel, and other resources will you need to carry out the activities?

UM is requesting funds and providing matching funds and in-kind resources for this project. Please see the budget narrative for a more complete description of how project funds will be used.

How will you track your progress toward achieving your intended results?

In addition to the measures described in Covitt's evaluation plan above, the project team will regularly invite members of spectrUM's advisory board, SciNation, and other tribal partners to observe and provide feedback on its programming. If tribal partners or team members have concerns about any of the project's activities, then those concerns will be addressed with the full team in order to ensure that we are building trusting relationships with our tribal communities. Activities may be adjusted to meet the goals of the project.

How and with whom will you share your project's results?

Montana teachers will learn about the project and its benefits for their K-12 students through the professional development workshops to be offered in years two and three, one in Missoula and one at the Montana Indian Education Association conference. Additionally, the project's website will disseminate project impact to the museum and informal science education fields, as well as resources created through the project. The project team plans to submit a paper to Connected Science Learning to further share the project results.

Project Results

What are your project's intended results and how will they address the need, problem, or challenge you have identified?

We intend to create a Third Place at the spectrUM in which every visitor who enters sees a connection to Montana Native heritage – they will see it in the signage in the museum, in the videos on display, and through the people and activities. By experiencing a Native science activity or meeting with a Native role model, each visitor will leave with a deeper understanding of and greater appreciation for the diverse cultural heritage and ways of knowing of Montana's tribes. This project aims to build understanding and connection between Native and non-Native museum visitors and promote a sense of belonging in museums, higher education, and STEM for Missoula's urban Indian children and families, as well as all museum visitors.

How will the knowledge, skills, behaviors, and/or attitudes of the intended audience change as a result of your project?

As noted above, this project aims to provide Missoula's urban Indian children and families with a sense of connection with their tribe, a sense of belonging in spectrUM's museum locations, and to build an understanding for all families and children about Native science and indigenous culture. Montana's urban Indian children, by seeing themselves represented in the museum and in higher education, will build their sense of possibility for their own aspirations. Through professional development, the project also aims to provide teachers with new approaches to incorporating Indian Education for All into their classrooms.

What data will you collect and report to measure your project's success?

Please see the above evaluation plan.

What tangible products will result from your project?

- A suite of approximately 10-12 Native science activities with an accompanying curriculum booklet, to be featured on a regular basis in spectrUM's programming;
- Native science check-out kit which will be available through the Montana's inter-library loan program, complete with a select set of project activities;
- Ten short videos featuring tribal elder stories. Tribes will retain copyright of the project's videos;
- An 8-hour teacher professional development workshop, which will be shared with 10 teachers in years two and an additional 10 teachers in year three, and will be shared in a shortened version at the Montana Indian Education Association Conference;
- A project website which will share project activities, curriculum, role model biographies, and videos.

How will you sustain the benefit(s) of your project?

The project's efforts will remain as part of spectrUM's museum at the Missoula Public Library and EmPower Place. We intend to designate space for this project's culturally responsive museum activities, role-model engagement, and professional development training to find a permanent home in the library-museum complex. The project team will continue to engage with our SciNation partners beyond the length of the project and train new spectrUM staff members and educators on project activities and culturally responsive education to ensure that spectrUM continues to serve as a culturally responsive Third Place for Missoula. Activities and video resources will continue to be available on the project's website, which will be integrated into spectrUM's page. The Native science check-out kit will continue to be available through the inter-library loan program, allowing additional libraries and teachers from across Montana to check out an activity kit into the future, which will be promoted through the Missoula Public Library's and spectrUM's newsletters. Finally, the University of Montana and spectrUM will continue to pursue external funding for these efforts.

