



Museums for America

Sample Application MA-249579-OMS-21
Project Category: Community Anchors

Explora

Amount awarded by IMLS:	\$172,600
Amount of cost share:	\$174,520

The project description can be viewed in the IMLS Awarded Grants Search:
<https://www.imls.gov/grants/awarded/ma-249579-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.

NARRATIVE: *√Roots: supporting Black scholars in STEAM*

I. Project Justification

What do you propose to do? Explora is an innovative experiential learning center in Albuquerque, New Mexico (NM), providing inquiry-based programs and exhibits that illuminate basic concepts in science, technology, engineering, art, and math (STEAM) for people of all ages. Explora's two-year IMLS *Museums for America* proposal, *√Roots: supporting Black scholars in STEAM*, is a collaborative project with **New Mexico Black Leadership Council (NMBLC)**—a 501(c)(3) nonprofit organization that serves as a hub to create a viable and sustainable social profit sector to serve the Black community in New Mexico; the **Greater Albuquerque Housing Partnership at Casa Feliz (Casa Feliz)**, an affordable-housing complex in Albuquerque's International District; the **Community School at Emerson Elementary**, part of the Albuquerque Public Schools system; and **Sandia National Laboratories' Black Leadership Committee** (Project Team). The goal of *√Roots: supporting Black scholars in STEAM* is three-fold: 1) to increase Explora's relationships with and relevance to Albuquerque's Black communities; 2) to increase opportunities for Black students in Albuquerque to pursue STEAM; and 3) to collaborate on a holistic, place-based approach to K-16 STEAM learning that incorporates a growth mindset and highlights the contributions of community members, particularly Black STEAM professionals.

To achieve this goal, Explora and the Project Team will:

- Build upon a well-tested listen, welcome, co-create engagement strategy to include a series of community design charettes that inform holistic, place-based, culturally-relevant STEAM programs for Black students in Albuquerque;
- Develop and facilitate community-embedded, out-of-school time programming that engages Black youth and their families in regular STEAM activities;
- Build infrastructure to expand upon a K-16 STEAM pathway and formalize opportunities for Black students to participate in STEAM programs, paid internships & work experiences, and scholarship programs for post-secondary study in STEAM; and
- Build students' STEAM identities by connecting youth to Black educators, scientists, and engineers working here in Albuquerque, who can serve as role models and mentors.

What need will your project address, and how was it identified? The *√Roots: supporting Black scholars in STEAM* (*√Roots*) project addresses an urgent need to confront equity issues in STEAM, increase access to STEAM learning activities that provide opportunities for Black students to develop STEAM identities, and increase the number of Black students in STEAM activities, internships, courses of study, and work experiences.

Nationally, only 7% of STEM professionals are Black (NSF, 2019). In NM, of the 32.34% of first-year college students who report interest in STEM, only 1.95% of those students are African American (UNM STEM Collaborative Center, 2017). Research has raised a number of possible reasons for this underrepresentation, including the need for racially and ethnically diverse mentors to attract more Black people to STEM jobs, limited access to science activities and courses, and socioeconomic factors that disproportionately affect Black communities (Pew Research Center, 2018). What is not in doubt is the positive impact of Black participation and success in STEM fields. Studies have demonstrated that Black STEM professionals are the most likely to call for racial and ethnic diversity in the workplace (*Ibid.*) and that a diverse STEM workforce leads to greater innovation, competitiveness, and even higher profits (Carter, 2017).

The need for the *√Roots* project was identified during a series of conversations during a very strange time in the world. In March 2020, Explora closed to the public due to the coronavirus pandemic, and Albuquerque Public Schools shuttered their doors, forcing students to stay home and transition to online learning. Albuquerque's out-of-school time education providers scrambled in an attempt to understand the types of in-person programming that

could be offered to support local families struggling with the online format. Two months later, George Floyd was murdered on camera, elevating a long-overdue conversation about racism and placing it in boardrooms and at dinner tables across the nation. Staff at Explora, as at many other organizations, had difficult conversations about shortcomings in service and allyship with Black students and families.

Then, in August 2020, Explora's Deputy Director, Kristin Leigh, participated in a United Way of Central New Mexico community event where she met NMBLC Executive Director, Cathryn McGill, and kicked off multiple conversations about the strengths and current challenges of Explora and NMBLC and spaces in which these things overlapped or complemented each other. Ms. McGill explained difficulties associated with the state's tri-cultural myth: NM is often referred to as a "tri-cultural" state, with an understanding that the majority of the population is of Hispanic, Native, or White/European ancestry. It became clear that Explora's vast suite of STEM programming for all ages reflected the tri-cultural narrative well, featuring many collaborative projects and programs with Native and Hispanic communities, but none with Black communities.

Explora and NMBLC identified shared goals to address the needs described above and began a pilot out-of-school time (OST) STEAM program, serving Black children residing in Albuquerque's International District, many of whom live at Casa Feliz. That new pilot program, described as Explora/Roots STEAM Camp and held in Fall 2020 for approximately 20 masked and socially-distanced students, built upon NMBLC's prior work with the Roots Summer Leadership Academy (Roots). Founded in 2013, Roots is an arts and STEM-focused, project-based, positive youth development opportunity for predominately Black children and youth ages 8-16 years. Roots uses the arts and sciences to teach leadership and self-esteem in a fun, multicultural environment for 50 children each year.

The Roots summer program, subsequent Explora/Roots STEAM Camp, and the proposed $\sqrt{\text{Roots}}$ project represent collaborative efforts to increase Black students' awareness of and access to STEAM learning opportunities in Albuquerque. Each also represents the type of investment in Black STEAM engagement that will be needed to begin levelling the playing field in our state. While Black people in NM make up less than 3% of the state's population (US Census Bureau, 2019), the pervasiveness of the tri-cultural myth has resulted in the relative invisibility of an estimated 19,000 (Wellington, 2013) Black people living in and around the Albuquerque Metro Area (54,000 statewide). Few local nonprofits specifically target and address the needs of Black people through programs, physical spaces, data, or reporting. This is particularly detrimental, given that data from a number of sources and reports show that Black people in NM experience higher rates of poverty, lower rates of participation in early childhood educational resources, and lower levels of literacy and numeracy proficiency rates in the K-12 education system (Sanchez et al., 2017) than all other groups. The $\sqrt{\text{Roots}}$ project is the result of the Project Team's shared understanding that: 1) Black children and families in NM need and deserve attention paid to their specific experiences, goals, and needs; 2) this attention is needed in order to realize improved educational and economic outcomes; and 3) increased involvement in holistic, place-based, culturally-relevant programming on a K-16 STEAM pathway will contribute to a growth mindset and academic agency, increase students' STEAM identities, and, ultimately, increase representation by Black students in STEAM careers.

Who will benefit from your project and how have they been involved in the planning? K-16 Black students residing in the Albuquerque area will benefit directly from the $\sqrt{\text{Roots}}$ project, and NMBLC has led much of the project planning, informed by their prior work with the target audience and their existing relationships of trust with project partners. The $\sqrt{\text{Roots}}$ Project Team will begin by gathering the input of Black students and their families through a combination of community listening sessions and design charrettes. Explora will utilize the Harwood Institute for Public Innovation's format for these community conversations (Community Conversation Workbook, n.d.) to ask participants to describe the kind of community they want, their aspirations, and the barriers they face. The Project Team also will use the Asset-Based Community Development (ABCD) approach learned through our IMLS Community Catalyst grant (LG-94-17-0260). ABCD "[builds] on the skills of local residents, the power of local associations, and the supportive functions of local institutions [and] draws upon existing community strengths to

build stronger, more sustainable communities” (DePaul University, n.d.). NMBLC has experience utilizing a design charette process to bring together community members—like scientists, artists, educators, and parents—to deconstruct current ideas about a topic and brainstorm new approaches. The Project Team will hold two of these design charettes, as well; participant feedback from these and the listening sessions will shape the development of $\sqrt{\text{Roots}}$ STEAM programs, making them more welcoming, relevant, and responsive to Black youth and families.

How will your project advance your institution’s strategic plan?: Explora’s current *Cradle through Career STEAM Learning Strategic Plan* aims to engage, educate, and employ NM students in science, engineering, and high-tech careers, starting with high-quality early childhood education and sticking with children on their pathway to STEAM courses and careers. The Explora board and staff has identified STEAM education and workforce development for underserved students as a key strategic priority. The $\sqrt{\text{Roots}}$ project advances this priority directly by building infrastructure to keep Black students on a STEAM pathway from engagement and education to employment.

How will your project address the goals of the MFA program and the Community Anchors & Catalysts category?: This project aligns with the goals of IMLS’ *Transforming Communities* strategic plan by: 1) promoting lifelong learning among diverse students and families, and 2) building capacities of museum staff to engage deeply with communities. This project addresses goals 1 & 2 described in IMLS’ strategic plan: “IMLS supports learning and literacy for people of all ages through museums and libraries” and “IMLS strengthens the capacity of museums and libraries to improve the well-being of their communities” (IMLS, 2018). Also, this community-based project will bolster Explora’s efforts to move beyond being a community resource and into the role of community catalyst and contributor within broader community conversations, meeting goals of the Community Anchors & Catalysts category.

II. Project Work Plan

What specific activities, including evaluation, will you carry out? How will you track progress toward achieving intended results?:

Project Team members will carry out four areas of work, outlined in the previous section and detailed here:

1. **Community listening and co-creation:** the Project Team will hold two listening sessions and two design charettes with Black students and families, in order to better understand our community’s aspirations. These sessions will be co-hosted by Explora, NMBLC, Casa Feliz, and the Community School Partnership at Emerson Elementary School, where the students of many of the targeted families attend school. The design charettes will make space to build relationships with Black families living in Albuquerque’s International District, deconstruct traditional views of STEAM education, and generate new ideas about how scientists, artists, educators, parents, and community members can come together to support a growth mindset about STEAM (Dweck, 2010), helping both students and their families understand that STEAM is something anyone can do well if given opportunities to explore and practice.
 - a. Performance measures: number of sessions with community members; number of participants in each session/charette
 - b. Evaluation question: what did the participation of Black community members teach us that we would not have learned without them?
2. **Development and facilitation of community-embedded, STEAM-rich learning opportunities** that incorporate socioemotional learning and 21st-century skills for 100 Black children and their families: the Project Team will work together to co-create and facilitate STEAM programming that addresses the aspirations learned during community listening and builds upon prior work done through Roots and the Explora/Roots STEAM Club. Examples of past collaborative STEAM activities include using hip-hop rhythms to practice numeracy and building pneumatic marshmallow launchers.
 - a. Performance measures: number of students who participate in STEAM out-of-school programs; number of hours of instruction; number of family members who participate in STEAM programs
 - b. Evaluation question: describe the community embedded STEAM-rich learning opportunities, including content, participation numbers, demographics, and frequency of participation by individual

3. **Build infrastructure to expand upon a K-16 STEAM pathway:** the Project Team will formalize opportunities for Black students to participate in STEAM programs, paid internships & work experiences, and scholarship programs for post-secondary study in STEAM. This will include implementing Memorandums of Understanding, as needed, and producing and disseminating a graphic piece that explains the opportunities on the pathway for dissemination among target families.
 - a. Performance measure: number of partners providing STEAM learning opportunities on the K-16 pathway; number of formal MOUs put into place; number of families who receive the final graphic piece; number of students placed in internships and work experiences; number of students receiving tuition assistance
 - b. Evaluation question: describe the K-16 pathway, participation numbers, demographics, and frequency of participation by individuals
4. **Build students' STEAM identities** by connecting youth to Black educators, scientists, and engineers working here in Albuquerque, who can serve as role models and mentors: volunteers from Sandia National Laboratories' Black Leadership Committee, an affinity group for Black STEM professionals working at the Labs, will participate in *√Roots* programming. Research shows that one of the most effective ways to encourage students to consider nontraditional careers is to introduce them to diverse role models, particularly role models with whom they are able to relate, by gender, ethnicity, socio-economic status, location, etc. Providing a diverse representation of role models begins to challenge stereotypes around careers where some groups may traditionally be underrepresented. Introducing students to people of color in STEM begins to shift the status quo and transform the popular image and belief of who "belongs" in STEM (National Alliance for Partnerships in Equity, n.d.).
 - a. Performance measures: number of students exposed to Black STEM professionals; number of Black STEM professionals participating in programming; contact hours between students and STEM professionals.
 - b. Evaluation question: describe opportunities for Black youth to meet and learn about Black STEM professionals' work, participation numbers, demographics, and frequency of participation by individual.

The Project Team will work with an external evaluator to track progress toward intended results; a detailed evaluation plan is described in Section III. Project Results, below.

What are the risks to the project and how will you mitigate them?: The Project Team has considered the risks that will be faced and how they might mitigate them. One serious risk that all collaborative projects must consider is that, often, the grassroots communities most affected by an issue are not included in collective decision making. This can result in ignoring critical community knowledge, ownership, and support for sustainability and creating solutions that may not be appropriate for the population being served (Wolff, 2016). Our Project Team has minimized that risk by including community members on the Project Team. These team members will organize listening sessions and design charettes with other community members to gain important data to bring to project development meetings.

Another risk faced when addressing community needs and underlying conditions is the potential treatment of adaptive challenges as if they were technical problems (Randall and Coakley, 2007). Technical problems cause high distress that can be alleviated quickly, because there's a specific problem and the technical know-how to provide solutions. Adaptive challenges take much longer to address and require new learning among lots of partners. Adaptive challenges, like increasing educational and economic outcomes for a particular segment of the population, require ongoing experiments, efforts, and attitudinal change. The Project Team will mitigate this risk by spending time in early planning meetings addressing the idea of technical vs. adaptive challenges head-on to develop common language and shared understanding and utilizing the relationships we've built over the years to support each other.

Explora's previous co-creation projects have clarified other risks related to relationship-building, including not investing enough time early on to build and nurture relationships among project partners and not clearly defining the process of co-creation right from the start. Other risks come from not clearly defining the responsibilities and expectations for all partners and from not being clear about consensus and final decision-making. In most co-creation models, decision-making becomes more shared and consensus-driven the farther a team is along the co-creation spectrum. A dedicated Project Manager will schedule regular in-person meetings with clear agendas and time built in for both relationship-building and project development.

Who will plan, implement, and manage your project? Will partners be engaged and, if so, for what purpose?: The $\sqrt{\text{Roots}}$ project will be planned, managed, and implemented by Explora and NMBLC. As the lead partner, **Explora** will provide coordination, management, and oversight of project activities. Explora will parlay its strengths—nationally-recognized informal science education programs, inquiry-based STEM exhibits, engagement with over 90 community-based organizations, and highly visible marketing and communication platforms reaching diverse audiences—into support for the project. Explora also will strengthen the project as the backbone organization of STEM-NM, the state's nationally designated STEM Learning Ecosystem. STEM-NM works to increase equity in and access to STEM experiences for underserved students to prepare them for jobs in local science, technology, and healthcare sectors. Our STEM-NM partners, including several higher-education institutions, share interest in and commitment to defining and supporting K-16 STEAM pathways. Explora has led and partnered on several IMLS- and NSF-funded projects and maintains the staff, budget, infrastructure, experience, and venue to host this work.

Explora's Project Team will be led by Project Director, Kristin Leigh (Deputy Director and Director of Administration & Advancement), and Project Manager, Amon Haruta (Director of Project Management). Tara Henderson (Director of Education and Visitor Experience) and Anthony Salvagno (Associate Director of STEAM Workforce Programs) will take the lead on curriculum and program development, and Sheldon Hamilton (Educator/Communications Coordinator) and Lyric Ellison (Educator/Visitor Services Manager) will take the lead on direct instruction with the students and will facilitate the community-embedded programs. As Black STEAM educators, Mr. Hamilton and Ms. Ellison also will serve as mentors and role models for the students, alongside members of Sandia National Laboratories' Black Leadership Committee. Renee Ruybal (Director of Development) will oversee fundraising and implementation of the STEM Scholars tuition assistance program. This team will work with additional Explora educators and program facilitators to implement the project and will join the larger Project Team, which includes staff from each partner organization. Staff at partner organizations will be paid as key members of the Project Team and have committed enthusiastically to co-developing the $\sqrt{\text{Roots}}$: *supporting Black scholars in STEAM* programs and associated K-16 STEM pathway (see Letters of Support). Partners each commit to the participation of their staff in the majority of project development meetings, pilot programming, and evaluation activities. Additional participants include local students, teens, and families, who will contribute to our understanding of the community need, prototype project deliverables, and participate in evaluation.

The $\sqrt{\text{Roots}}$ project will be co-led by Dr. Cathryn McGill, Executive Director of the **NMBLC** and co-creator of the Roots Summer Leadership Academy (Roots). NMBLC brings a wealth of experience and well-established relationships of trust with the $\sqrt{\text{Roots}}$ project's target audiences. **Casa Feliz** is an apartment complex in Albuquerque's International District and receives funding in part through the Low Income Housing Tax Credit (LIHTC) program. Casa Feliz offers space reserved for the delivery of counseling services to special needs residents and quarterly Financial Literacy Training at no cost to all residents. David Poole from Casa Feliz will serve on the Project Team and host the place-based, community-embedded STEAM programs. A third project partner is the **Community School at Emerson Elementary**, which serves the families in the International District and where many of NMBLC's client families attend elementary school. A Community School builds partnerships between the school and other community resources. Emerson fulfills this role by integrating academics, health, and social services with youth, family, and community engagement and development to improve student learning and facilitate stronger families and healthier communities. Kim Obregon, Community School Coordinator at Emerson

Elementary, will serve on the Project Team. Sandia National Laboratories Affinity group for Black STEM professionals is our fourth partner. The **Black Leadership Committee (BLC)** serves the laboratories by providing leadership to Black employees in support of Sandia's mission. The BLC also participates in identifying and recruiting qualified Black employment candidates and promoting cultural awareness at the Laboratories. Members of the BLC will serve as STEAM role models and mentors for students participating in *√Roots* programming.

When and in what sequence will your activities occur? What time, financial, personnel, and other resources will you need to carry out the activities?: As described in the Schedule of Completion, Explora will begin work on this two-year project in September 2021 and complete it in August 2023. The Project Manager will convene bi-monthly Project Team meetings for relationship building, clarifying expectations and responsibilities, planning, brainstorming, vetting ideas, activity co-development, reflection, and review of prototyping and evaluation. In September-November 2021 Explora will hold listening sessions and design charettes with families in Albuquerque's International District to better understand relevant aspirations and community conditions. The Project Team will use this public knowledge to develop a first round of community-embedded STEAM programming for both students and families, likely to be held at both Casa Feliz and Explora January-May 2022. With this first round of programming, the Project Team will commence planning and building infrastructure for a K-16 pathway that keeps Black students in Albuquerque in STEAM. Possible "steps" along the pathway include: 1) community-embedded, out-of-school STEAM programming for K-8 students; 2) summer camp opportunities for K-8 students; 3) recruitment of Black students to participate in existing paid STEM internship programs for high school and college students at Explora and partner organizations; 4) opportunities for Black high school students to participate in Explora's Teen Advisory Group; 5) connections between students and Black STEM professionals through out-of-school programming, Teen Science Cafés, and more; and 6) recruitment of Black high school seniors for a newly-launched Explora STEM Scholars tuition-assistance program. Year One will involve planning and implementation of programs, in order to map out activities on a K-16 STEM pathway and determine the infrastructure and formal partnerships needed to make the pathway sustainable and ongoing.

Evaluation will take place throughout the project period to inform the Project Team's work and allow for changing course, as needed. It will inform any remediation or changes needed for a second round of K-16 programming in Year Two. By September 2022, the Project Team will start drafting a Sustainability Plan that includes MOUs that define partnerships and responsibilities along the K-16 STEAM pathway. For example, an MOU might formalize a certain number of internships or spots on Explora's Teen Advisory Group that will be held for Black teens referred by partner organizations. Programming will be formalized and integrated into Explora's suite of recurring OST programs. A visual graphic of STEAM activities along a K-16 pathway will be published and disseminated. Finally, summative evaluation also will take place in Year Two.

IMLS-requested funding, along with contributed cost share, will support key staff at partner organizations, development of programs and infrastructure, evaluation, student support, and meeting expenses. There also will be expenses for consumable materials, supplies to maintain COVID-safe practices, and graphic design/printing of materials used to explain the career pathway.

How and with whom will you share your project's results?: Results of *√Roots* will be shared locally with all project partners and in a report that will be sent to everyone who participated in the listening sessions and design charettes. Results also will be shared during a program at the NM Science Fiesta, one of the largest STEAM education events in NM. Findings that serve as the basis for approaches, processes, tools, and resources for other museums and libraries will be shared with partners across the country. Explora is a member of the national STEM Learning Ecosystems Community of Practice. Results of this work may be shared as a webinar with this national community of practice and showcased during an annual STEM Learning Ecosystem Convening. Resources and findings from the project will be shared through presentations at meetings and conferences for museum-, education-, and youth development-focused audiences, facilitated by representatives from the partner organizations. Because the project

lead at Explora is an alumni fellow of the Informal Learning Leadership Collaborative (formerly the Noyce Leadership Institute), the resources and lessons learned also will be shared among that network of over 100 leaders in the museum field, a group capable of creating systemic change in the way museums operate.

III. Project Results

What data will you collect and report to measure your project's success? What are your project's intended results and how will they address the need, problem, or challenge you have identified? How will the knowledge, skills, behaviors, attitudes of the audience change as a result of your project?: Explora will hire an external evaluator, Curt Mearns, Ph.D. from Pivot Evaluation, to lead an evaluation plan that is guided by an evaluation committee, comprised of Project Team members and 2-3 additional members of the Black communities being served. The evaluation committee will suggest and approve operational definitions for evaluation metrics and methods for collecting those metrics. This committee will meet quarterly to review decision-making relative to program design implementation and evaluation, and will be recruited from partner networks, including NMBLC, Casa Feliz, and Emerson Elementary. Results will be shared with the evaluation committee as they arise, for discussion of interpretation and implications for current program activities. Results will accumulate over the period of the grant to produce interim and final reports. Dr. Mearns also will collect and report on the IMLS-required Performance Measure Statements.

Intended results of the project include: 1) co-creation of new community-embedded, OST STEAM programs designed to meet the needs and aspirations of Black students and families in Albuquerque's International District; 2) increased awareness of the role of a growth mindset in allowing students to see STEAM as something approachable and doable; 3) improved STEM identities and motivation to pursue STEAM courses and careers among Black students in Albuquerque; 4) increased awareness of a K-16 STEAM pathway among local families; and 5) increased capacity among the Project Team to demonstrate how a holistic, place-based approach can affect educational and economic outcomes and contribute to systemic change of community conditions.

Objectives for *√Roots: supporting Black scholars in STEAM* include the following:

Short-term: 1) 25 community members participate in listening sessions & design charettes; 2) 100 K-8th grade students participate in STEAM OST programs and interact with a Black STEAM professional; 3) 50 families from partner organizations participate in a family STEAM program; 3) 12 teens participate in STEAM advisory groups or internships; 4) 2 high school seniors receive scholarships to pursue STEAM at local higher education institutions

Mid-term: 1) local Black students demonstrate improved STEM identities and increased participation in STEAM programs; 2) local Black families demonstrate increased awareness of steps along a local K-16 STEAM pathway; 3) three Memorandums of Understanding are formalized with partner organizations to support students annually on a K-16 STEAM pathway

Long-term: 1) increased relevance of Explora to Albuquerque's Black communities; 2) increased representation of Black students in K-16 STEAM learning opportunities in NM; 2) increased understanding of the importance of a growth mindset among participating families and the contributions of community members, particularly Black STEAM professionals

What tangible products will result from your project? How will you sustain the benefits of your project?: Project deliverables will include both a new community-driven program and a well-articulated K-16 STEAM pathway that demonstrates ways local Black students can stay engaged in STEAM in Albuquerque. A successful *√Roots* project will demonstrate how museums can be significant contributors within broader community conversations around issues like educational outcomes and workforce readiness and contribute to positive community change. The more engaged the museum is with the community, the more it becomes like a thread woven through a quilt; if the thread is pulled out, the quilt unravels. Because multiple partners share ownership of the project, there are more resources, funders, and stakeholders at the table to provide long-term support. As we move towards true engagement with partners, we can leverage each other's strengths and resources, support and stand up for each other's work, and have greater collective impact, helping all of our organizations be more stable and sustainable.

