



Museums for America

Sample Application MA-10-17-0281-17

Project Category: Learning Experiences

Funding Level: \$5,000 – \$500,000

Hands On Children’s Museum

Amount awarded by IMLS: \$145,099

Amount of cost share: \$145,099

Attached are the following components excerpted from the original application.

- Abstract
- Narrative
- Schedule of Completion

Please note that the instructions for preparing applications for the FY2018 Museums for America grant program differ from those that guided the preparation of FY2017 applications. This year, the maximum that may be requested from IMLS is \$250,000. Be sure to use the instructions in the FY2018 Notice of Funding Opportunity for the grant program and project category to which you are applying.

Abstract

The Hands On Children’s Museum will draw on two of its most distinctive features—an award-winning Outdoor Discovery Center and a thriving Young Makers program—to create a year-round *Nature Makers* program. This two-year interdisciplinary project will link nature-based learning with making activities that use natural materials and are inspired by the “making” and design that occurs in the natural world. Partnerships with local Tribes, natural resource agencies, scientists, maker groups and other organizations will supplement and enrich the staff-led offerings. Nature Makers addresses two of the most significant needs in early learning—inspiring early Science, Technology, Engineering, Art, and Math (STEAM) education and connecting children with the outdoors—and is designed to achieve the following key outcomes. Nature Makers will increase children’s exposure to open-ended outdoor tinkering to build the foundation for STEM success in school; it will educate parents, caregivers and teachers about the important role outdoor exploration plays in STEM achievement; and it will stimulate children’s curiosity about the natural world and increase the time they spend outside.

Nature Makers is an innovative outgrowth of two exciting bodies of work that the Museum has been engaged in over the last several years. Shortly after opening the Museum’s half-acre Outdoor Discovery Center, visitor surveys revealed a desire for more facilitated outdoor family learning opportunities. The Museum has responded to this demand by partnering with the U.S. Forest Service to offer Nature Play activities during peak visitation hours over the last three summers. During this same time, Hands On has also been growing its Young Makers program, which gives the earliest learners the opportunity to invent, tinker and use real tools as an accessible way to engage in early STEAM learning. With new research emerging on the value of outdoor play in preparing young children for STEAM achievement, Museum staff recognized an exciting opportunity for cross-pollination between the Nature Play and Young Makers programs.

Over the last year, the Museum has experimented with bringing Young Makers activities outdoors to create a new Nature Makers program and the results are exciting. For example, the Museum’s two-day Snow Days event included numerous facilitated maker activities such as using a variety of tools to create snowball catapults, employing tools and recycled materials to build mini snow forts, and conducting melting experiments on ice blocks with pipets, syringes and both hot and cold water. In addition to prototyping Nature Makers activities at the Museum, staff also led a session on the Nature Makers topic with a panel at the 2016 Association of Children’s Museums conference. The session was the third highest attended and the fourth highest rated topic in the entire conference, demonstrating significant interest among the children’s museum field.

With IMLS grant funding, Hands On will develop a year-round Nature Makers curriculum that will be infused into the Museum’s education offerings—giving children the double benefit of time spent outdoors and development of early STEAM skills. The Museum will fabricate “pop-up” tinkering spaces to be featured within existing outdoor areas, such as a mud pie kitchen in the children’s garden, an insect hotel-building station in the Naturalist Cabin, and a maker bench with real tools on the Outdoor Terrace. In addition to staff-led programming, the program will also feature special guests, such as native weavers, folk school artisans, Forest Service rangers, native plant experts, local Mountaineers, among others. Regional students, teachers and parents will benefit from the development of Nature Makers field trip workshops and outdoor maker investigation stations aligned with the State’s newly implemented Next Generation Science Standards. The program will serve most of the Museum’s 300,000 visitors, including thousands of children and families who are at-risk and underserved, as it is integrated into Free Friday Nights, free field trips for underserved schools and support programs for at-risk families.

Evaluation will involve formative and summative components, and will track progress towards achieving project outcomes. Results will be shared internally to build knowledge and inform continuous improvement of program offerings, and externally as a model for outdoor making activities in the children’s museum field.

1. PROJECT JUSTIFICATION

The Hands On Children's Museum will draw on two of its most distinctive assets—an award-winning Outdoor Discovery Center and a thriving Young Makers program—to create a year-round **Nature Makers** program. This two-year interdisciplinary project will link nature-based learning with diverse making activities that use natural materials and are inspired by the “making” and design that occurs in the natural world. Partnerships with local Tribes, natural resource agencies, scientists, maker groups, environmental organizations, educational institutions, nature centers and other organizations will supplement and enrich the staff-led program offerings. Nature Makers directly addresses two of the most significant needs in early learning—inspiring early Science, Technology, Engineering, Art, and Math (STEAM) education and connecting young children with the outdoors. The program will benefit many Museum visitors, including thousands who are at-risk and underserved. This approach is an innovative outgrowth of two exciting bodies of work that the Museum has been engaged in over the last several years and is designed to achieve the following key outcomes. Nature Makers will increase children's exposure to open-ended outdoor tinkering to build the foundation for STEM success in school; it will educate parents, caregivers and teachers about the important role outdoor exploration plays in STEM achievement; and it will stimulate children's curiosity about the natural world and increase the time they spend outside.

Project Proposal: Located on the southern-most tip of Puget Sound in a community shaped by its relationship to forests and abundant water, the Hands On Children's Museum reflects a deep connection to the region's natural environment and promotes play from the indoors out. At Hands On, we believe that children must connect with nature. It is essential to their healthy development in every major way—intellectually, emotionally, socially, spiritually and physically (Kellert 2005). Yet research consistently shows that even in the nature-rich backdrop of the Pacific Northwest, children's time outdoors continues to shrink while their time in front of screens increases. In fact, one study showed that 71% of mothers surveyed reported playing outdoors every day as children, yet only 26% said their children play outdoors daily (Charles & Louv 2009).

For this reason, the Museum's permanent home, which opened on Olympia's East Bay in late 2012, was designed to model a new type of children's museum—one that integrated our signature play-based learning with an overarching focus on nature. The facility not only includes nature-themed indoor galleries, but also incorporates three large roll-up doors which lead to a half-acre Outdoor Discovery Center, to encourage seamless indoor/outdoor play. The first major outdoor installation was a driftwood fort building area on a re-created Puget Sound beach featuring sand and boulders as well as loose driftwood pieces, stones, sticks and bits of canvas that children can use to create their own fort structures. This concept won national recognition by the Association of Children's Museums as one of only three *Going Wild!* demonstration sites in the nation for connecting young children with nature. In the last few years, we have added a Patrick Dougherty sapling sculpture, children's garden, adventure trail, gravel dig, alpine stream, and Naturalist Cabin to facilitate nature play. Research conducted in conjunction with the *Going Wild!* project confirmed that this rich natural environment was encouraging families to spend more time outdoors while visiting the Museum. It also revealed their desire for more facilitated family learning opportunities in this exciting new space. In response, the Museum partnered with the U.S. Forest Service to offer Nature Play activities during peak visitation hours for the past three summers. Nature Play activities such as *Mud Pie Mondays*, *Owl Pellet Dissection*, *Rotten Log Reveal*, and *Puget Sound Beach Exploration* are free with admission or membership and are well attended, yet funding restrictions have limited the program's expansion.

Concurrent with the development of the Nature Play activities, Hands On has also been growing its popular Young Makers program. Thanks in part to previous IMLS grant support, the Young Makers program has grown from a small pilot project to a national model for early STEAM learning. Young Makers gives the earliest learners the opportunity to invent, tinker and use real tools. Activities include

silkscreen printing, sewing, toymaking, cardboard inventions and many other topics. Activities are designed to be open-ended and to introduce high level concepts to children in age-appropriate ways. The Young Makers programming is incredibly popular and elicits positive feedback from educators and caregivers while promoting intergenerational learning. In the past year, since adding Young Makers year-round, we have documented a 10% increase in visitation (30,000 visitors)! Evaluation conducted to date has found that these activities are effectively engaging children in multiple dimensions of science learning, and that children are taking away new skills and interests as a result of their participation.

With new research emerging on the value of outdoor play in preparing young children for STEM achievement (Dewar 2016), Museum staff began to experiment with taking Young Makers activities outdoors. For instance, in the garden this summer, children built ephemeral fairy houses using pieces of bark, bamboo, shells and other natural materials. Staff encouraged children to think about practical considerations when creating their structure such as the fairy's size and the kind of features and location a fairy would like to have in a home. The mix of whimsy and structural engineering in this project is indicative of the Maker mindset that has permeated our thinking. In another example, we provided a loose part engineering station where kids could use found natural objects such as rocks, bark and sticks to create dams and waterways in an outdoor water table. Staff also piloted a variety of new activities on a prototype outdoor maker bench. We provided recycled materials like pool noodles, tongue depressors and wood products, then let children use real tools including saws, hammers, drills and clamps along with hardware such as screws, nails, nuts and bolts to build and tinker. In one observation, staff watched a 3-year-old boy and his father experiment with screwdrivers for nearly 30 minutes. Early on, the child was calling out the screwdriver he needed to remove the screw, "flat" or "Phillips," and diligently working with the right tool to perform the desired action.

We also created a two-day Snow Days event, trucking in snow from nearby Crystal Mountain to the Museum. The program included numerous facilitated maker activities such as using a variety of tools to create snowball catapults and employing tools and recycled materials to build mini snow forts. In the Naturalist Cabin, we gave children pipets and syringes along with hot and cold water and ice blocks to conduct melting experiments. Children and adults worked together to draw conclusions and staff helped them relate their investigations back to climate issues. While some children experimented with real snow in the outdoors, others engaged in parallel nature-inspired activities indoors, such as constructing large "snow" forts out of PVC pipe and white sheets.

Amanda Wilkening, the Museum's Art Studio, MakeSpace & Visitor Engagement Manager was so excited by the cross-pollination between the Young Makers and Nature Play programs that she began planning for a new *Nature Makers* pilot series and led a session on this topic with a panel of presenters at the 2016 Association of Children's Museums conference in Connecticut. The session was the third highest attended and the fourth highest rated topic in the entire conference! In fact, the Association of Children's Museums is considering offering it as part of a new webinar series. Buoyed by the outpouring of interest from the field and the high level of engagement by Museum visitors, we began to envision Nature Makers as a core program offering. As in our indoor maker programs, we wanted to encourage adult participation in the activities as well. We know that caregivers are the critical link in getting children outside and giving them opportunities to learn by doing.

With your grant funding, we will develop a year-round Nature Makers curriculum that can be infused into the Museum's annual education offerings—giving children the double benefit of time spent outdoors and development of early STEAM skills. We envision the fabrication of well-designed "pop-up" tinkering spaces to be featured within existing outdoor areas, such as the following additions: a water supply to the Puget Sound Beach to create wet sand exploration; a miniature building station for small-scale forts in the driftwood fort exhibit; a mud pie kitchen in the children's garden; an insect hotel building station in the Naturalist Cabin; and a dedicated maker bench and tools on the Outdoor Terrace. By adding a new layer of making activities within existing spaces, we will greatly expand our repertoire of facilitated activities. We also envision featuring special guests like native plant specialist, Elise

Krohn. Known for her hands-on approach to teaching kids about native plants, she could facilitate an activity in the outdoor kitchen where children harvest native huckleberries from the Museum garden and turn them into fruit leather. We are also working with the Squaxin Island Tribe to develop a project that would include learning to harvest and prepare cattails (like those growing in a wetland adjacent to the Museum) for weaving into mats and baskets. Through unique projects like these, young children will be introduced to complex topics like ethnobotany in compelling and age-appropriate ways.

Making has transformed our field trip program too with the addition of maker investigations. The field trip program serves thousands of underserved students throughout rural Southwest Washington. With grant funding, we will develop new Nature Makers field trip workshops and outdoor maker investigations based on trials and feedback from teachers like this one who observed her students collaboratively building a driftwood fort together, *"This is great for my students...they're so used to being in front of a TV they forget how to use their hands."*

Nature Makers activities will bring the maker philosophies of peer-to-peer learning, exploration, and experimentation to natural materials and outdoor spaces. Activities will tap into children's natural curiosity and creative instincts, as they create temporary art exhibitions from natural materials in the spirit of Andy Goldsworthy, "cook" in an outdoor kitchen, create mud bricks to learn about early construction, participate in a bee nest take-apart with the Olympia Beekeepers, and learn how to build a fire with the Olympia Mountaineers. The Nature Makers program will address the well-documented need for connection with the natural world to improve academic success; nurture physical, emotional, and social well-being; and inspire environmental stewardship.

Project Need: Research suggests that active exploration, especially in the outdoors, wires the brain and helps children develop powerful intuitions about concepts central to STEM learning (Dewar 2016). Children are born scientists and engineers and they thrive when pursuing those passions in the outdoors where materials are plentiful and the setting supports creativity and problem solving (Kellert 2005). Nature is an ideal way to teach STEM to early learners (Sneideman 2013) and early learners need to be connected to nature now more than ever before. From the Kaiser Family Foundation, to the National Wildlife Federation and the Nature Conservancy, the message is the same—children today spend far less time outdoors than those of previous generations. Today's average American child spends as few as 30 minutes in outdoor play each day, and more than seven hours in front of a screen. Childhood has moved indoors for many reasons including both parents in the workforce, heightened safety concerns, a lack of green spaces, an increase in scheduled activities, and a dramatic rise in screen time. And, this trend is reflected across all demographics and without regard to geographic location. Interestingly, a Nature Conservancy study (2014) revealed that the overwhelming majority of parents polled in five countries viewed children's lack of time outdoors as a major problem. Yet, outdoor play is at an all-time low. The lost connection to nature not only impacts the potential for early STEM development and academic success, but it's also a major public health concern underlying the rising rates of childhood obesity, depression, anxiety and ADHD.

In Washington State, the timing for the new Nature Makers program is particularly apt. The State ranks #1 for overall concentration of STEM jobs, yet the mismatch between the skills required for those jobs and the skilled individuals to fill them, is growing faster than in every other state but Delaware (Washington Stem). To combat this mismatch, Washington's Superintendent of Public Instruction will begin implementing the Next Generation Science Standards in 2017. Gardens and outdoor spaces have been identified as rich venues for putting these standards into practice, as they allow students to engage in place-based, collaborative learning, while developing a sense of interconnectedness (Kelley & Williams 2014). Research by Washington STEM (2012) also reveals the need to train preschool teachers how to use fun, engaging maker lessons to teach STEM. The organization found teachers tend to spend less time on science than any other pre-academic area "because they aren't comfortable with the subject or feel a lack of confidence in teaching it." As a result, children are less prepared in science when they

enter kindergarten. As the most visited youth museum in the State and the region’s most trusted resource for early math and science learning, Hands On is in a unique position to help early learners build a strong foundation for the Next Generation Science Standards they will need to master.

Project Audience: Museums for America funding will allow us to deliver Nature Makers programming to tens of thousands of early learners, along with their parents, caregivers and teachers. The project will reach diverse and underserved audiences in several ways, which reflects the Museum’s belief that creative, hands-on learning opportunities should be available to all children regardless of their ability to pay. Approximately 100,000 visitors (one-third of total visitation) each year access the Museum through our robust Free and Reduced-fee Admission Programs, including monthly Free Friday Nights, field trips for underserved schools, parenting classes, sponsored admissions and memberships, support for the Museum’s growing military family visitors and family support programs for special populations, such as women and children impacted by domestic violence, foster families, grandparents raising grandchildren, families of children with autism, among others. Nature Makers programming will reach visitors in most of these programs, as illustrated in the Project Work Plan.

Advancing the Strategic Plan: At Hands On, our vision is to be the *premier provider of interactive art and science education for young children* in Washington State. We are dedicated to providing engaging and experiential learning experiences that help inspire a life-long love for learning and promote proper brain development in young children. The Nature Makers program will integrate key elements of the Museum’s strategic plan, including the focus on offering more high-quality STEAM programming for early learners and connecting children with the outdoors. We are guided by the knowledge that improving STEAM education is paramount and by research showing that children who spend time outside are likely to understand and integrate scientific concepts better. By engaging children and families in nature-based STEAM learning, we will encourage parents and caregivers to learn along with their children and give them tools for fostering a greater connection with the natural world.

Addressing Museums for America’s Goals for Learning Experiences: Placing learners at the center of enriching experiences is central to the Museum’s mission and critical to the success of the Nature Makers program. This project is grounded in best practices for early education, as outlined in Lillian G. Katz’s *STEM in the Early Years* (2010). By allowing children to be active, engaged and take initiative for their own learning through Nature Makers activities, children will develop knowledge and skills that are not only good for STEAM learning, but also for overall long-term academic and personal success.

2. PROJECT WORK PLAN

Activities	Frequency/Timeline
Nature Makers Activities & Special Guests for General Museum Audiences	
Nature Makers activities facilitated by staff and guests will be offered year-round during regular museum hours, with the heaviest programming during summer and school breaks. Special guests will be varied and may include Arbutus Folk School; Squaxin Island Tribe native weavers; Olympia Mountaineers, Emmy-award winning science educator Lynn Brunelle; U.S. Forest rangers; and an edible garden chef, among others.	Winter (daily for 3 weeks of Winter Break) Spring (daily for 3 weeks of Spring Break; Summer (5 x per week) Fall (2 x per week)
An herbalist and native foods specialist will develop all-weather teaching tools to help children explore the practical “making” uses of plants. These resources will be featured in the Outdoor Discovery Center & the Naturalist Cabin, and will connect with plant-based maker activities.	Winter / Spring 2018 , with minor enhancements in Fall 2018 / Winter 2019

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PlayWise, our free weekly adult-child early learning class, will include a Nature Makers activity and parents and caregivers will receive tips on how to nurture children’s development and curiosity at home, with an emphasis on outdoor activities.	2 x per month; 1 x during week and 1 x during Free Friday Night
Programming Specifically for Underserved Children & Families	
Offer Nature Makers activities during Free Friday Nights when the Museum is accessible to all families in our service area at no cost. Average attendance is 900 visitors each night including many military families.	1 x per month
Add activities to family support programs for special populations, including mothers and children affected by domestic violence; foster & kinship families; families of children with autism; & other special needs.	1 x per month
Enhance free and reduced-fee field trips for Title I, rural and underserved Pre-K & elementary schools by staffing outdoor maker investigation stations (aligned Next Generation Science Standards).	3 x per week (Jan-May)
Design & Fabricate Outdoor Tinkering Spaces	
Design and fabricate tinkering stations in the Naturalist Cabin, the Children’s Garden / Greenhouse, and the Covered Terrace. Each of these galleries already exists, but to transform them into tinkering spaces will require small scale construction, storage, tools and supplies. Special features include a mud kitchen, outdoor maker bench, insect hotel building station, water supply to the beach and miniature fort-building station.	All stations to be operational by March/April 2018, with ongoing enhancements
Outdoor Exhibit Enhancements	
A waterproof sunshade (25’ x 16’) in the garden making area will provide an all-season outdoor activity space.	Spring 2018
To encourage outdoor exploration and participation in year-round Nature Makers activities, we will construct a mobile rain gear rack with boots and coats for kids to use. A clean-up station with mats and mud scrapers will assist clean-up before Museum re-entry.	Spring 2018
Curriculum Development, Evaluation & Dissemination	
Work with external evaluator to develop a comprehensive evaluation plan.	Nov. / Dec. 2017
Engage in research, curriculum development and activity prototyping, including outreach to community partners to serve as special guests.	Ongoing
Develop assessment instruments and protocols, train education staff and volunteers in use of the instruments.	Winter 2018 to be ready for use by April 2018
Develop and prototype new Nature Makers field trip workshop (aligned with Next Gen Science Standards for WA) available as an option to the ~12,000 children and adults who visit the Museum on field trips each year. Include Nature Makers activities in educator trainings & open houses.	1 new field trip workshop per school year; bi-annual teacher open houses / trainings
Conduct formative evaluation, review results & modify programming as needed	Spring/Summer/Fall 2018
Travel to the Association of Children’s Museum (ACM) conference, the Association of Science and Technology Centers (ASTC) conference, national maker faire, and regional maker faires to learn new ideas and share innovative maker trends and activities.	ACM (1 x per year); ASTC (1 x per year); Nat. Faire (1 x per year); Regional Faires (2x year)
Conduct summative evaluation, share results with stakeholders, including HOCCM staff and volunteer, community partners and funders.	Fall 2019

Project Management: The project will be led by the Museum's Art Studio, MakeSpace & Visitor Engagement Manager, Amanda Wilkening (MA, MBA). Amanda has spent more than 22 years working with kids, art, science and education. As a Teaching Artist and Program Manager for the Museum of Children's Art in Oakland, CA she piloted a preschool Artist in Residency program that eventually grew to serve 20 preschools in the Bay area. She served as the Regional Manager for Science Adventures, a science enrichment company, where she became involved in the Maker Movement. Amanda holds graduate degrees in Museum Studies and Counseling Psychology (with a focus on children 2-5), and has experience using the arts with special needs early learners. Amanda will collaborate with the external evaluator and provide oversight of Adrienne Testa (BA), who will move from her current position of Visitor Engagement Coordinator to the new position of Nature Makers Coordinator. In her four years at Hands On, Adrienne has coordinated and developed activities for several programs, including Nature Play, monthly Free Friday Nights, and the after-hours Adult Swim science programs for guests 21 years and older. She has created and prototyped activities for the Young Makers program, and has an extensive background in environmental education, including three years as a Master Teacher at the Museum of Life & Science in Durham, NC. She will be supported by the Museum's Outdoor Discovery Center supervisor, Gabby Huffman, and a small team of Outdoor Educators/Assistants, who will assist with the activity preparation, set-up, breakdown and instruction.

Financial, Personnel, and Other Resources: The Museum is requesting \$145,099 support from IMLS to be used over two years to help pay for a dedicated Nature Makers Coordinator and other critical program staff, including the Outdoor Discovery Center Supervisor, Outdoor Educators/Assistants, Prop Procurer and Volunteer Coordinator, as well as stipends for special guests. IMLS funding will also assist with exhibit enhancements and the fabrication and maintenance of outdoor tinkering spaces, materials and supplies, evaluation expenses and travel for program-related research, dissemination and special guest recruitment. The Museum will cover the time for the Directors of Education and Exhibits, and match the time for the MakeSpace Visitor Experience Manager as well as the education team. We have secured matching funds to assist with the exhibit enhancements and tinkering stations construction.

Evaluating & Tracking Progress: Hands On will contract with Kathryn Owen of Kathryn Owen Consulting to help us develop and implement a comprehensive evaluation plan. Kathryn brings over 15 years of experience evaluating the impact of informal learning initiatives and training staff in evaluation methods. We are currently working with Kathryn on the evaluation of our IMLS-funded Young Makers program, and in doing so, we are laying a strong groundwork for evaluation of the Nature Makers program. Evaluation will involve formative and summative components, and will track progress towards achieving performance measurements and project outcomes.

The evaluation will be conducted through a mixed methods design; likely methods will include focused observations of children and families, pre and post surveys with caregivers and teachers, interviews with participating families, observations of Museum educators and interviews with key stakeholders. Kathryn will develop, test and refine the evaluation tools and provide training in data collection for Museum staff, who will be responsible for most data collection activities in order to build institutional capacity for evaluation.

Assessment of children's engagement in Nature Makers activities will be grounded in an evidence-based framework developed by informal science learning researchers studying the practice of making or tinkering. The Learning Dimensions Framework identifies four categories of learning—Engagement, Initiative & Intentionality, Social Scaffolding, and Development of Understanding—with a total of 18 distinct behaviors that have been observed in children engaged in making activities and Maker Spaces (Exploratorium 2013).

3. PROJECT RESULTS

Performance Goal & Data: The Nature Makers initiative is designed to *provide inclusive and accessible learning opportunities* for young children and their families through the activities outlined above. By definition, making is inclusive and accessible because activities do not require previous knowledge; there is no single 'right' answer; children learn through side-by-side collaboration; and learning across age groups is encouraged. All data collection activities will be designed in a manner that allows us to assess the extent and depth of participation among all audiences served, including historically underserved audiences.

Intended Results & Changes in Knowledge, Skills, Behaviors & Attitudes: Nature Makers addresses two of the most significant needs in early learning—inspiring early STEAM education and connecting young children with the outdoors.

- 1) **More children who visit the Museum, including thousands who are at-risk or underserved, will have increased exposure to open-ended outdoor tinkering experiences using natural materials to build the foundation for STEM success in school.** Children will show increased engagement in the learning process and evidence of the development of scientific process skills such as observing, predicting, testing and using the language of science.
- 2) **Parents, caregivers and teachers will learn about the important role outdoor exploration plays in STEM achievement in the early years and will also learn how to better provide these experiences in accessible ways at home and in school.** Parents and caregivers will gain new ideas for facilitating making activities outdoors. They will recognize and support children's informal scientific investigations of cause and effect in the outdoors. Teachers will have greater confidence in their ability to facilitate child-directed, nature-based making activities as a way to teach science and math in the early years. Parents and teachers will introduce new STEM vocabulary while kids are physically engaged.
- 3) **Children and their families will increase their understanding of and curiosity about the natural world and increase the time they spend outside.** Children and families will spend more time outdoors at the Museum, at home and in nearby nature spaces. Families will show greater satisfaction with the time spent outdoors.

Tangible Products: As evidenced by the popularity of the Nature Makers topic on the national level, the children's museum field is looking for fresh ideas to invigorate existing maker programs while also increasing participation in outdoor exploration. We intend to develop a replicable, scalable program model and curriculum that can be implemented by other institutions—even those that have limited outdoor settings. The IMLS grant will fund several important improvements to the Museum's Outdoor Discovery Center making year-round exploration more enjoyable for our visitors for many years ahead.

Sustained Benefit: Nature Makers is a natural and creative outgrowth of the tremendous success of both the Young Makers and Nature Play programs. It reflects the Museum's commitment to continuous improvement in all that we do. Our success is a direct result of listening to our visitors and our community, constantly assessing needs and looking for new and innovative ways to meet those needs. The Nature Makers program has the potential to be a fresh approach far into the future. As we piloted nature-based maker activities over the last year, we tracked our highest participation in outdoor programs since opening the Outdoor Discovery Center in 2013. We believe that Nature Makers will draw more regular visitation which generates earned revenue to sustain innovation and reinvestment. Our past experience shows that IMLS support leverages other program support and increases funding opportunities. Including Nature Makers activities in our many support programs for at-risk or underserved children and families will further increase the value of the program and generate continued interest from both individual and corporate donors.

