



**Museums for America**  
**Sample Application MA-10-13-0574-13**  
**Project Category: Learning Experiences**  
**Lake Champlain Basin Science Center**

Amount awarded by IMLS:	\$147,934
Amount of cost share:	\$150,738

Attached are the following components excerpted from the original application.

- Abstract
- Narrative
- Schedule of Completion

In order to cultivate lifelong environmental literacy, educational efforts must begin at an early age and provide a continuum of experiences that cultivate future environmental stewards. However, science and stewardship programs and resources for preschool children and care providers are virtually nonexistent, particularly for low-resource families living in the Lake Champlain Basin.

The *Science Play* Project will create a partnership between ECHO, a lake aquarium and science center, and the Greater Burlington YMCA, Vermont's largest provider of childcare services, to connect preschool learners and their adult caregivers to high-quality environmental education resources and programs at ECHO. In addition to the thousands of families that already use ECHO as a resource, this project will extend services to the community's neediest preschoolers and their adult caregivers, including parents, educators, service providers and informal caregivers who, due to financial and cultural hurdles, currently do not use ECHO as a learning resource.

The 2-year *Science Play* project will create an immersive, watershed resource and activity area to better support preschool children (ages 0-5) and their adult caregivers and educators to explore and make relevant connections to their watershed community. It will also expand ECHO's preschool programming to reach an additional 500 local preschoolers and 1000 adult caregivers through a combination of drop-in programs, class field trips to ECHO, family visits to ECHO and professional development for teacher-caregivers. As a result of *Science Play*, preschool children will engage with top quality resources to support their early science learning and stewardship; informal preschool caregivers will access tools and resources to support preschool children in early science learning and environmental stewardship; and educators at the YMCA and ECHO will improve their knowledge and skills for providing developmentally-appropriate science education to high need, culturally diverse preschool children and caregivers. Results will be assessed through Outcome-based assessments with *Science Play* preschool children and adult caregivers; surveys and informal feedback from visitors to *Science Play*; and quarterly Advisory Team meetings to review *Science Play* goals, progress and results.

*Science Play* promises to model an innovative partnership that leverages the complementary assets of two critical community organizations, effectively creating an early childhood community center inside a hands-on science center. This will be of value to museums seeking to build access, skills and resources for serving high need and culturally diverse audiences. It will also be of value to community organizations, like the national YMCA, seeking to integrate science content through partnerships. *Science Play* will offer curricula, audience engagement strategies and outcomes-based results for a model early childhood STEM education program.

## 1. PROJECT JUSTIFICATION

The *Science Play* project proposes to create an immersive, watershed resource and activity area to better support preschool children (ages 0-5) and their adult caregivers to explore and make relevant connections to their watershed community. *Science Play* will help ECHO redesign its preschool experience to engage a diversifying preschool population in water exploration and stewardship. It will also expand its preschool programming to reach an additional 500 local preschoolers and 1000 adult caregivers through a combination of drop-in programs, class field trips to ECHO, family visits to ECHO and professional development for teacher-caregivers. ECHO is well-positioned to implement this project by collaborating with the region's largest preschool education provider, integrating lessons from ten years of successful preschool programming, and building on a multi-year equity and diversity initiative. The goal of this two year project is to create a permanent preschool area with sustainable, need-based programming that supports culturally-relevant water stewardship.

### Needs Addressed

In order to cultivate lifelong environmental literacy, educational efforts must begin at an early age and provide a continuum of experiences that cultivate future environmental stewards (NOAA Education Strategic Plan, 2009-2029). The first five years of life are particularly critical to shaping children's future behaviors and skills and preparing them for success in school, the workplace and the community. Early experiences and environments influence brain development, laying the foundation for problem solving, reasoning, curiosity, behavior and social skills. Investments in early childhood education have been found to yield big returns on school and life success. Access to enriching materials and meaningful training for childcare providers, both formal and informal, is essential. However, relatively few public resources focus on improving the quality or availability of early childhood education (Understanding Vermont: Early Care & Education, 2010), particularly related to environmental science and stewardship.

46% of families-with-children are classified as low-income in Burlington, ECHO's home and Vermont's largest city (Vermont Dept. of Education, 2011). Socio-economic factors limit enriching early childhood experiences with science, especially in informal learning environments such as ECHO. Accessing this population and providing the children with meaningful early childhood education and the informal caregivers with training and coaching is a need and challenge. In addition to economic drivers, the diversification of our immediate community, though enriching overall, creates cultural barriers to accessing environmental science learning through a traditional science center model. In ECHO's case, this barrier can lead to the community's disconnect with immediate environmental impact, especially in regards to the Lake Champlain watershed.

Water quality and its broader impact on environmental health is a critical issue for the 571,000 residents of the Lake Champlain Basin, which is home to what many consider the sixth great lake. Approximately one-third of the area's residents access drinking water from Lake Champlain (Lake Champlain Basin Program, 2012). Each of the eight drainage basins within the Lake Champlain Basin is listed as "impaired" and fails to meet the Vermont Water Quality Standards (United States Environmental Protection Agency, 2008). It is well-acknowledged by research and management organizations focused on improving the health of the Basin that citizens need support understanding and taking responsibility for their personal impact on the watershed. ECHO's own *Youth Stewardship Initiative* (IMLS MA-04-11-0085-11) has made inroads with youth aged 5-15, yet programs and resources for preschool children and caregivers in this area are virtually nonexistent.

### Target Audiences

In addition to the thousands of families that already use ECHO as a resource, this project will extend services to the community's neediest preschoolers and their adult caregivers, including parents, educators, service providers and informal caregivers who, due to financial and cultural hurdles, currently do not use ECHO as a learning resource. Over the last 20 years, Burlington's population has diversified radically from 2% to 11% people of color. This change is even more prominent in Burlington Public Schools, which include over 28% children of color and over 60 different languages and dialects. This rapid change is due, in great part, to a federally-funded Refugee Resettlement Program which has provided acculturation services to refugees arriving in Burlington from countries and regions such as Somalia, Congo, Bosnia and Nepal. These radical shifts in the

cultural landscape of Burlington require community programs and services designed to meet the needs of diverse learners, many of whom face cultural, linguistic and financial dislocation from available resources.

ECHO has a history of serving high-need learners in our community. For the past eight years, ECHO has addressed financial barriers to visitation through our Open Door program, which offers discounted vouchers and memberships to social service organizations to distribute to their constituencies. Though this program has been popular and well-received, recent analysis shows that certain populations are still not able to easily access ECHO. To address these potential obstacles, ECHO will partner with Vermont's largest provider of childcare services, the Greater Burlington YMCA, to connect preschool learners and their adult caregivers to high-quality environmental education resources and programs at ECHO. The YMCA's continuous feedback loop with all families served provides valuable information for planning this project.

For 146 years, the Greater Burlington YMCA has provided a wide range of vital community services to over 500 preschool learners and their caregivers annually, regardless of ability to pay. The YMCA's six early childhood program sites are accredited by the National Association for the Education of Young Children and awarded with 5 STARS from the State of Vermont's Step Ahead Recognition System. Even with these high ratings, YMCA early childhood education specialists have indicated that environmental science and water stewardship are areas where their preschool educators have little to no training and that science, in general, is not well integrated into their curricula. For example, the YMCA uses a nationally-accredited preschool assessment tool, Teaching Strategies GOLD, to assess social and emotional development; language, literacy and communication; and physical development and health; but does not use the science assessment. As one of the highest rated childcare providers in the State of Vermont, this discomfort integrating and assessing science is of critical importance. National findings confirm that early childhood educators generally have insufficient training in science to support early science education (Handbook of Early Childhood Education, 2012).

In addition to offering preschool programs to working parents, the Greater Burlington YMCA also supports preschool caregivers including families, friends and/or neighbors. These caregivers are frequently overlooked for their essential role in contributing to children's early learning and school readiness. In 2011, the Greater Burlington YMCA was one of fifteen selected from 2,600 YMCAs across the country to offer the Early Learning Readiness Program, designed to educate and train home-based caregivers on developmentally appropriate learning activities for children ages 0-5. This evidence-based program model has emerged as one of the few effective approaches for engaging and retaining low-income and diverse caregivers of this informal, yet vital, sector of the early care and education field. The pilot program is currently offered in two Burlington "drop-in" locations where informal caregivers and their preschoolers access mentoring on developmentally appropriate learning activities, opportunities to build connections with other caregivers and children, and access to rich materials for a positive start to early learning. ECHO's new *Science Play* resource and activity area will serve as an additional location for the "drop-in" program to support early science learning and stewardship.

This project will also enhance the experience of ECHO's current 150,000 visitors each year, the plurality of which are families with preschool children. ECHO engaged in a rigorous process to assess the needs of this intended audience through focus groups and prototype activities. Focus groups conducted with ECHO members with preschool children revealed needs for a larger space, an area that could "grow with" early learners, and more frequent and flexible programming. In focus groups and in written feedback, parents requested a variety of engagement strategies, including active play, quiet reading, creative areas, and increased opportunities for parent-child interaction. They asked for different physical and intellectual "levels," and for a variety of rich, hands-on materials that change regularly to keep the area "fresh" for repeat visitors. Finally, they requested greater program support and more frequent programs.

### **Intended Results**

The *Science Play* project will address the needs of preschool learners and their adult caregivers living in the Lake Champlain Basin by leveraging the combined assets of two of the region's largest education and service providers. ECHO will contribute a hands-on environment dedicated to young scientists, and a decade of experience engaging families with young children in science education and environmental stewardship. The

YMCA will contribute an established network of high-need, culturally diverse audiences, and over a century of service to these communities. The partnership will effectively create an early childhood community center in a hands-on science center. As a result:

1. Preschool children aged 0-5 will engage with top quality resources to support their early science learning and stewardship, including a resource and activity area, facilitated programs and knowledgeable caregivers.
2. Informal preschool caregivers will access tools and resources to support preschool children in early science learning and environmental stewardship, including training on developmentally appropriate learning activities, opportunities to build connections with other caregivers, and access to high quality programs.
3. Educators at the YMCA and ECHO will improve their knowledge and skills for providing developmentally appropriate science education to high-need, culturally diverse preschool children and caregivers.

### **Relationship to Mission & Strategic Plan**

ECHO is an innovative lake aquarium and science center committed to educating visitors about opportunities for stewardship of the Lake Champlain Basin. ECHO's 100 interactive exhibits, 60 species of fish, reptiles and amphibians, and three annual changing exhibits lead visitors to view the natural environment as part of their neighborhood and to learn about stewardship opportunities. Since opening in 2003, this 36,000 square-foot facility located on the Waterfront in Burlington, Vermont has served approximately 150,000 visitors each year and is a primary destination for preschool children and their families. ECHO's mission is "to educate and delight people about the Ecology, Culture, History and Opportunity for stewardship of the Lake Champlain Basin." Key to implementing this mission is the opportunity for learners to explore and connect to water their local environment. Through *Science Play*, preschool children and their adult caregivers will have access to engaging, relevant resources to support early, lifelong, science learning and environmental stewardship.

The *Science Play* project also implements three of the six strategies of the ECHO strategic plan:

Strategy 2: ECHO will strengthen its education, science and research partnerships. The project will support strategy 2 by partnering with the Greater Burlington YMCA, the largest provider of childcare services in Vermont, to build on their strong early childhood programs and extend ECHO's high-quality science education resources to high-need early learners and their caregivers.

Strategy 3: ECHO will be a regional leader in environmental science education, especially in creating opportunities for convening discussion, implementation of Lake and Basin stewardship initiatives, and demonstration of "green" lifestyles and tactics. The project will support Strategy 3 by creating a highly immersive watershed resource and activity area that builds on national best practices for informal learning and models early engagement environmental science and stewardship.

Strategy 4: ECHO will diversify funding through significantly increasing gift, grant/contract, endowment, and earned revenues, and implement cost savings. The innovative action of placing a traditional preschool provider in a science center meets Strategy 4 by diversifying the grant and gift audience two-fold. By co-staffing the new *Science Play* area with the Y, quality and impact will be increased at a lower cost.

## **2. PROJECT WORK PLAN**

### **Project Activities**

*Science Play* will create an immersive, watershed resource and activity area to better support preschool children and their adult caregivers to explore and connect to their watershed community. This will include:

1. Science Play preschool resource and activity area: ECHO will transform an existing 1000 square-foot classroom space, and adjacent 500 square-foot water play exhibit, into a flexible resource and activity area dedicated to engaging preschool learners and adult caregivers in water exploration and environmental science. Prototype activities could include: waterfront harbor play area, water "painting" and creative play area, waterfront "marketplace," water investigation activity stations; water-themed puzzles; and flexible reading and teaching nook. During Year 1, *Science Play* will prototype above activities, incorporate successful elements of the YMCA's drop-in programs, and collect audience feedback through surveys and informal feedback stations. In Year 2, *Science Play* will incorporate audience feedback and successful prototypes, and integrate the adjacent

water play exhibit, to create a 1500 square-foot watershed resource and activity area. *Science Play* will be open to ECHO's 150,000 visitors every day from 10-5. It will also host the preschool caregiver drop-in program and YMCA preschool field trips (described below).

2. *Science Play* preschool caregiver drop-in program: *Science Play* will serve as an additional location for the YMCA's Early Learning Readiness Program for informal caregivers. It will be staffed weekdays from 10:00 a.m. to 1:00 p.m., September through May, with trained preschool educators from the YMCA and ECHO. Three days/week, the space will offer informal facilitation and mentoring for caregivers based on the Y's existing program. Two days/week it will offer scheduled programs, based on ECHO's preschool science story hour. The drop-in program will be available to all ECHO's 150,000 visitors, but participants in the Y's drop-in program will receive free memberships to visit the *Science Play* drop-in program through ECHO's Open Door subsidized admission program. The program will serve 50 high-need families in Year 1 and 75 in Year 2.

3. YMCA preschool field trips to *Science Play*: Each year, all 450 preschoolers in YMCA programs will visit ECHO on *Science Play* field trip. Each classroom will visit 3-4 times over the school year for 45-minute programs led by an ECHO educator. Programs will be designed on based on ECHO's successful preschool science story hour and connect to the Vermont Early Learning Standards for science. The programs and visit will be free of charge for all participating children through ECHO's Open Door subsidized admission program.

4. Family Visits to ECHO: All families with caregivers participating in the drop-in program or children participating in field trips will receive 2 \$2/person vouchers through ECHO's Open Door subsidized admission program, to encourage a return visit to ECHO. This will extend *Science Play*'s reach to 500 additional families.

5. *Science Play* preschool educator workshops: Educators from ECHO and YMCA will co-design and deliver 8 quarterly workshops to cross-train staff, interns and volunteers in both organizations to implement environmental science curricula for preschool children and informal caregivers. These workshops will integrate experience with science content from ECHO, cultural-relevance from YMCA, and early learning expertise from both organizations. Workshops will prepare educators to mentor informal caregivers in the drop-in program, facilitate field trip programs and connect *Science Play* to YMCA classrooms.

### **Project Implementation & Management**

Management & Oversight: ECHO's Director of Education, who has a PhD in science education and extensive experience managing federal grants, will provide oversight and management, including timeline, budget, partnership, deliverables and reporting. She will work closely with a *Science Play* Advisory Team, which will include the YMCA's Vice President for Child and Youth Services, who has 25 years experience managing early childhood programs; ECHO's Director of New, who has developed all of ECHO's preschool experiences; and ECHO's Executive Director. This team will meet quarterly to advise the *Science Play* Project Team on activity and program development, integrating assessment data, and developing a financial plan to ensure sustainability.

Resource, Activity & Program Development: The *Science Play* Project Team will be led by ECHO's Public Education Manager, who oversees ECHO's visitor programs, including preschool. The Team will include ECHO's Youth Education Specialist, who has developed and implemented ECHO's successful preschool science story hour for three years; the YMCA's Director of Early Childhood Programs, who oversees the Y's preschool programs including the drop-in caregiver and preschool classrooms; and the YMCA's Associate Director of Early Childhood Programs, who has developed and taught YMCA preschool programs for 20 years.

This Team will meet weekly during the first 8 weeks and monthly for the remainder of the project to develop and assess activities and resources for *Science Play*. This will include integrating successful activities from the Y's current drop-in centers and prototyping new watershed-focused activities. The Team will also develop systems for collecting and integrating visitor feedback into *Science Play*. ECHO's Youth Education Specialist will coordinate purchasing materials, installing activities and reviewing visitor feedback.

Curriculum for the drop-in program is already in use at the YMCA but will be collaboratively adapted to focus on the *Science Play* themes by the Project Team. Curricula for YMCA field trips will be adapted from ECHO's preschool science story hour with the help of the Program Team. Curricula for the educator workshops will be co-developed and delivered by the Project Team to ECHO and YMCA staff, interns and volunteers.

Program Staffing and Administration: YMCA field trips will be scheduled by ECHO's Program Registrar, delivered by ECHO's Youth Education Specialist, with the support of the YMCA Preschool Teacher. Participants for the caregiver drop-in program will be recruited and matriculated by the YMCA's Director of Early Childhood Programs. The drop-in program will be co-staffed by YMCA's Associate Director of Early Childhood Programs and ECHO's Youth Education Specialist, with ECHO volunteer and intern educators. Subsidized admission through ECHO's Open Door program will be tracked by ECHO's Program Registrar, including memberships for drop-in participants, admission for preschool field trips, and vouchers for families.

Program Assessment: Preschoolers participating in the YMCA field trips, and caregivers participating the drop-in program, will be assessed using tools already in use at the YMCA. These will be adapted to integrate science learning standards (see below) and implemented by YMCA educators, with oversight from the YMCA Director of Early Childhood Programs. Activities developed for *Science Play* will be assessed through visitor surveys and informal feedback stations, which will be coordinated by ECHO's Youth Education Specialist.

### **Timeline of Activities**

Fall 2013: All project partners meet to launch project and clarify *Science Play* goals, roles and schedules. Project Team meets weekly to develop prototype activities and resources, purchase and install materials, and develop visitor feedback mechanisms for *Science Play*. Project Team adapts curricula for caregiver drop-in program and YMCA field trips, and develops first educator workshop.

Winter 2014: Advisory Team convenes to review prototype activities and program curricula. Project Team convenes monthly sessions to prepare for and review launch of *Science Play*. *Science Play* preschool activity and resource area opens to public. *Science Play* preschool caregiver drop-in program launches and runs through spring 2014. YMCA preschool classes attend 1st field trip to *Science Play*. Baseline GOLD assessment conducted with preschool classes. 1st quarterly preschool educator workshop is offered.

Spring 2014: Project Team convenes monthly to assess prototypes, analyze visitor feedback, design new activities for the experience, assess visitor feedback and co-manage staffing. Advisory Team convenes to review launch, upgrades and budget. Midyear assessment conducted with caregivers in *Science Play* drop-in program. YMCA preschool classes attend 2nd and 3rd field trips. 2nd preschool educator workshop is offered.

Summer 2014: 2nd assessments conducted with caregivers in drop-in program and YMCA preschool classes to assess growth. *Science Play* operates as a resource for ECHO's summer visitors, staffed by ECHO. Project Team convenes monthly to adapt curricula based on assessment results, analyze visitor feedback, and design new activities for *Science Play*. Community participants recruited for *Science Play* caregiver drop-in program. 3<sup>rd</sup> preschool educator workshop is offered. Advisory Team convenes to reflect on Year 1 and plan for report.

Fall 2014: *Science Play* preschool caregiver drop-in program starts and runs through spring 2015. New *Science Play* materials purchased and installed based on visitor feedback. Program Team convenes monthly feedback sessions to assess prototypes, design new activities for the experience, assess visitor feedback and co-manage staffing. Baseline GOLD assessment conducted with YMCA preschool classes. Preschool classes attend 1st field trip (2nd year) to *Science Play*. 4th and 5th preschool educator workshops are offered. Advisory Team convenes review Year 1 and review goals & timeline for Year 2 and submits Year 1 report.

Winter 2014: Project Team convenes monthly review feedback to date and assess need for exhibit upgrades in the *Science Play*, including integration with water play exhibit. YMCA preschool classes attend 2nd and 3rd field trips to *Science Play*. Midyear assessment conducted with caregivers in drop-in program. 6th preschool educator workshop is offered. Advisory Team convenes to review upgrades and define a sustainability plan.

Spring 2015: Project Team convenes monthly to begin co-design of exhibit upgrades. Advisory Team convenes to review budget and project to prepare for final report. YMCA preschool classes attend 4th field trip to *Science Play*. 7th preschool educator workshop is offered.

Summer 2015: 2nd assessments conducted with caregivers in drop-in program and YMCA preschool classes to assess growth. *Science Play* operates as a resource for ECHO's summer visitors, staffed by ECHO. Project Team convenes monthly to complete co-design of exhibit upgrades. Community participants recruited for *Science Play* caregiver drop-in program. 8th preschool educator workshop is offered. Advisory Team convenes

to institute sustainability measures and assemble final report.

Fall 2015: Project Team convenes monthly to review project lessons and prepare for post-grant phase. *Science Play* preschool caregiver drop-in program starts and runs to end of grant. Baseline GOLD assessment conducted with YMCA preschool classes, who attend 1st field trip to *Science Play*. 8th preschool educator workshop is offered. Exhibit upgrades installed (funded by non-IMLS sources). Advisory Team submits final report.

### **Financial, Personnel, and Other Resources**

*Science Play* depends on a strong partnership, experienced staff, existing federal grants, and new funding for staff and materials. Both ECHO and the YMCA are committed to the partnership and are already working closely together through a Burlington initiative, called *We All Belong*, which trains City organizations to better serve culturally diverse audiences. Both organizations also have extensive experience engaging preschool audiences--the YMCA through decades of nationally-accredited services, and ECHO through a decade of highly successful exhibits and programs. Both organizations currently employ experienced preschool education staff to support the project. The YMCA is already funded through Y-USA for the Y Early Readiness Program, which will support all YMCA staff costs and half of the material costs for the drop-in center at ECHO. ECHO is already funded to support the ECHO Open Door program, which will subsidize admission for all YMCA preschool field trips and family visits, as well as memberships for drop-in caregivers. In order for *Science Play* to be successful, ECHO is requesting funds from MFA to support staff time to develop concepts, activities and programs for *Science Play*, to staff the area and build the partnership, and for materials and resources for *Science Play*. ECHO will match some salary support and materials through a foundation grant. We are also seeking funding through non-IMLS sources to support the exhibit upgrades for *Science Play*.

### **Tracking and Communicating Results**

Project results will be tracked using a variety of measures:

1. Outcome-based assessments with *Science Play* preschool children and adult caregivers (described below);
2. Surveys and informal feedback from visitors on the activities and resources developed for *Science Play*; and
3. Quarterly Advisory Team meetings to review project goals, progress and results.

Results of this unique partnership will be shared through a formal reporting process to Y-USA and YMCA organizations nationwide. ECHO will use its existing network of 37 social service organizations involved in the ECHO Open Door program to report results and garner feedback and participation. Within Vermont, the Vermont Birth-to-Three mentor network and the Vermont Starting Points provider network will receive status updates, opportunities for participation, and final results. As an innovating museum project, ECHO will present results at regional and national museum associations such as NEMA, ASTC and ACM.

## **3. PROJECT RESULTS**

As a result of the *Science Play* project:

Preschool children aged 0-5 will engage with top quality resources to support their science learning and stewardship, including a watershed resource and activity area, facilitated programs and knowledgeable caregivers. Outcomes align with the Vermont Early Learning Standards (2006), including:

- Explore and describe natural processes related to water in their community and local environment
- Use tools and their senses to make observations, gather and record about water and the natural world
- Use play as a vehicle to build relationships to the natural world, neighbors and community
- Increasingly demonstrate a sense of belonging to the community and local environment
- Use play to discover, question, and understand the natural and physical world

Informal preschool caregivers will access tools and resources to support early science learning and environmental stewardship, including training on developmentally appropriate learning activities, opportunities to build connections with other caregivers, and access to high quality materials and programs. Caregivers will:

- Increase use of activities that support science literacy and stewardship
- Increase knowledge of child development
- Increase understanding in the role of play in the development of school readiness

Educators at the YMCA and ECHO will improve their knowledge and skills for providing developmentally appropriate science education to high-need, culturally diverse preschool children and caregivers through shared tools, resources and training. Educators will:

- Increase understanding of learning trajectories and appropriate activities for children 0-5
- Increase knowledge of environmental science content and stewardship practices
- Increase skills and knowledge for engaging children from different cultural backgrounds

### **Measuring Success**

The success of the *Science Play* project will be measured through several outcomes-based methods:

1. Outcomes for the preschool field trips will be assessed using Teaching Strategies GOLD, which aligns with the Vermont Framework of Standards and Learning Opportunities. YMCA Early Education staff already assess their preschool program participants for Social and Emotional Development; Language, Literacy and Communication; and Physical Development standards through observation-based assessments. Checkpoints of developmental progress are taken in the fall to develop curriculum to support areas of development and in the spring to identify growth and need for support. As part of this project, they will also integrate a science assessment tool to evaluate outcomes for *Science Play*. Assessment data will be used to improve *Science Play* preschool field trip curricula.
2. Outcomes for the drop-in program will be assessed using an existing Caregiver Survey developed by Y-USA and evaluated by Project Zero at the Harvard Graduate School of Education to document impact of the Y Early Readiness Program. The caregiver survey is administered by the Early Learning Facilitator midway through the program year and again at the end to assess caregiver knowledge. Caregivers self-assess themselves in different areas, such as their understanding of how children learn, use of more and/or new activities at home, and specific program areas that have engaged them and their child. Findings from this assessment will be used to improve curricula for the *Science Play* preschool caregiver drop-in program.
3. Success of the overall *Science Play* resource and activity area will be assessed using formal and informal feedback from *Science Play* visitors. *Science Play* walls will be painted with white board paint, where parents will be invited to write their informal feedback on *Science Play* in response to questions (such as “which activities are most engaging for your child?”). Staff will also collect feedback through short, written surveys conducted with visitors in the space. The Project Team will collate and analyze these data weekly to identify trends in visitor feedback and propose improvements to the *Science Play* area.

### **Value to the Field**

*Science Play* promises to model an innovative partnership that leverages the complementary assets of two community organizations, effectively creating an early childhood community center inside a hands-on science center. This will be of value to museums seeking to build access, skills and resources for serving high-need and culturally diverse audiences. It will also be of value to community organizations, like the national YMCA, seeking to integrate science content through partnerships. *Science Play* will offer curricula, audience engagement strategies and outcomes-based results for a model early childhood STEM education program.

### **Sustaining Project Benefits**

Because it implements ECHO’s strategic plan, supports our key audience and builds new audiences, we expect the project to be sustainable beyond the 2 year grant period. The program will help ECHO get a better return on its Open Door Program, a long term federally funded program that will continue to support discount admission beyond the grant period. It will also build the capacity for both organizations to permanently expand their work: ECHO to a network of high-need preschoolers and caregivers; the YMCA to quality science and environmental education. The project supports the YMCA’s program goals, particularly to expand the Early Learning Readiness program to new locations, and requires few incremental costs on their part. To ensure sustainability, *Science Play*’s Advisory Team will devote time to co-crafting a sustainability plan, which integrates the complementary goals and resources of the two organizations to support longevity.

YEAR 1 ACTIVITIES	Oct 2013	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014	Jul 2014	Aug 2014	Sept 2014
<b>Science Play Activity &amp; Resource Area</b>	Define best activities from Y's program. Develop new activities to test.	Purchase & install materials	Design visitor feedback stations	Open Science Play area	Collect visitor feedback	Analyze visitor feedback	Upgrade prototypes based on visitor feedback	Collect visitor feedback	Analyze visitor feedback	Upgrade prototypes based on visitor feedback	Collect & analyze visitor feedback	Upgrade prototypes w/ visitor feedback; Purchase & install new materials
<b>Science Play Preschool Caregiver Drop-in Program</b>	Market program; recruit caregivers	Adapt caregiver assessment to include science	Process subsidized memberships for caregiver participants	Launch drop-in program	Continue recruitment & marketing	Conduct caregiver self-assessment survey			Conduct caregiver self assessment survey	Adapt drop-in curricula to respond to assessment	Market & recruit new caregivers	Launch 2nd year drop-in program
<b>YMCA Preschool Field Trips to Science Play</b>	Adapt preschool assessment to include science standards	Conduct baseline GOLD assessment with all preschoolers	Adapt field trip curricula to respond to assessment	Classes attend first field trip to ECHO	Distribute discount family passes to participants	Classes attend 2nd field trip to ECHO		Classes attend 3rd field trip to ECHO	Conduct GOLD assessment with all preschoolers to identify growth	Adapt field trip curricula to respond to assessment		Conduct baseline GOLD assessment with all preschoolers
<b>Science Play Preschool Educator Workshops</b>	Assess needs	Develop curricula	Deliver workshop 1	Assess needs	Develop curricula	Deliver workshop 2	Assess needs	Develop curricula	Workshop 3		Develop curricula	Deliver workshop 4
<b>Science Play Advisory Team</b>	Meeting 1: launch program; clarify goals, roles & schedule		Meeting 2: Review curric & activities, prepare for launch	Submit ASTC proposal		Meeting 3: Review opening; review visitor feedback; review budget			Meeting 4: Review assessments; reflect on Y1; Plan for interim report		Draft interim report	Submit interim report

YEAR 2 ACTIVITIES	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sept 2015
<b>Science Play Activity &amp; Resource Area</b>	Collect visitor feedback	Analyze visitor feedback	Upgrade prototypes based on visitor feedback	Assess need for exhibit upgrades/ integration with water play exhibit		Begin design of exhibit upgrades			Complete design of exhibit upgrades			Install exhibit upgrades (non IMLS funding)
<b>Science Play Preschool Caregiver Drop-in Program</b>		Process subsidized memberships for caregiver participants		Conduct caregiver self-assessment survey					Conduct caregiver self-assessment survey	Adapt drop-in curricula to respond to assessment	Market & recruit new caregivers	Launch 3rd year drop-in program
<b>YMCA Preschool Field Trips to Science Play</b>	Classes attend 1st field trip to ECHO	Distribute discount family passess to participants	Classes attend 2nd field trip to ECHO		Classes attend 3rd field trip to ECHO		Classes attend 4th field trip to ECHO		Conduct GOLD assessment with all preschoolers to identify growth			
<b>Science Play Preschool Educator Workshops</b>	Develop curricula	Deliver workshop 5	Assess needs	Develop curricula	Deliver workshop 6	Assess needs	Develop curricula	Deliver workshop 7	Assess needs	Develop curricula	Deliver workshop 8	
<b>Science Play Advisory Team</b>	Meeting 5: Review Year 1 lessons; review Year 2 goals & timeline; present at ASTC			Meeting 6: Develop sustainability plan; submit ASTC/ACM proposal			Meeting 7: Project review for final report; budget review			Meeting 8: Institute sustainability measures; prepare final report	Draft final report	Submit final report