

Chicago Public Library Foundation

The Chicago Public Library Foundation (CPLF) seeks an IMLS Laura Bush 21st Century Librarian Program grant of \$347,124 over three years for the *Librarians Lead Learning (LLL)* Project. Receipt of the requested grant will allow Chicago Public Library (CPL) to build capacity among librarians to foster community-based, informal learning that supports school-aged patrons as they become critical thinkers and problem solvers using the strategies and habits of mind associated with science and engineering (STEM). Because these priorities and staff development needs are widely shared by libraries across the United States, and given CPL's commitment to developing resources and strategies for broad dissemination, this investment in the creation of high quality professional development curricula and how-to guides will enhance field-wide capacity to support these modes of lifelong learning.

CPL's choice of partner for this project – the Museum of Science and Industry (MSI) – reflects its sustained commitment to leading-edge, high quality development opportunities for librarians. CPL's choice of field test partners for this project – King County Library System (KCLS) – demonstrates its belief that this work should be relevant for and accessible to libraries in diverse communities. CPL is poised to expand and formalize these relationships into a larger effort with high potential benefit for librarians, the patrons they serve, and the wider library field.

This Project Addresses a Community Need: In a global environment, libraries remain community hubs and trusted places for learning and exploration. They can serve as catalytic resources for individuals seeking to advance their skills, build their knowledge, and apply their learning. For libraries to do this well requires not only investment in quality programming, tools and content, but also training for librarians so that they can remain incorporating evolving learning resources, methods and tools into their practice to continue fulfilling the mission of the 21st century library. The *LLL* Project focuses on an area of growing interest among libraries and meeting a clear need in the community for high quality, STEM-related programming for children: how can librarians support the informal, out-of-school time learning for school age children in STEM content areas, and what professional development support do they need to do this well?

What We Will Accomplish: By leveraging the accessibility of public libraries and community trust in librarians, CPL and MSI have developed a replicable approach to community-based learning that has shown positive academic and social outcomes for children, and empowered librarians to confidently deliver these learning supports for families. Approaching its fifth year, the *Summer Learning Challenge* is an award-winning, participatory summer learning program showing measurable learning results for children. As a result, CPL has been approached by over 200 libraries seeking assistance in the design and delivery of similar participatory learning programs. While the CPL team has widely shared program design concepts and materials from the *Summer Learning Challenge*, they have been unable to share the most critical and necessary ingredient for delivering high quality learning experiences in libraries: *their hands-on approach to librarian professional development, built through deep collaboration with MSI.*

The *LLL* Project proposes to create, test, and disseminate a set of tools and resources libraries can use to build the capacity of their staffs to engage patrons in understanding the fundamental science behind the real-world issues important to them (e.g. the costs of heating homes and the health effects of pollution), while also codifying how libraries can best build partnerships with local STEM-based resources and institutions to enhance this work at the local level.

Who Will Benefit: Beyond the 182 librarians within CPL and KCLS who will directly benefit from multi-year professional training and support through this project, libraries interested in supporting related participatory STEM-related programs will have access to free resources and peer networks of participating librarians developed through this grant to transform their practice and their programs. By building librarians' skills in an area that is in high demand from library users (high quality STEM learning experiences for children), and with potential for transformative learning for children as a result of this professional development, this work will not only improve the skills of librarians and increase the capacity of library staff broadly, but also enhance the relevance and sustainability of libraries overall.

Timeline for the Project: As this work builds on a successful, multi-year collaboration between CPL and MSI, and demonstrated interest from KCLS to apply this model to their libraries, the development, field testing and initial dissemination of professional development materials funded by this grant will take three years.

The Chicago Public Library Foundation (CPLF) seeks an IMLS Laura Bush 21st Century Librarian Program grant of \$347,124 over three years for the *Librarians Lead Learning (LLL)* Project to support the refinement, documentation and national dissemination of professional development for librarians focused on participatory learning in libraries. Chicago Public Library (CPL) and the Museum of Science and Industry (MSI) will lead the proposed **LLL Project**, in the **Community Anchors** category, to build capacity among librarians to foster community-based, informal learning that supports school-aged learners as they become critical thinkers and problem solvers using the strategies and habits of mind associated with science and engineering (STEM). The **LLL Project** falls into the **Continuing Education** project type.

1. Statement of Need

In a global environment, libraries remain community hubs and trusted places for learning and exploration. They can serve as catalytic resources for individuals seeking to advance their skills, build their knowledge, and apply their learning. For libraries to do this well requires, not only investment in quality programming, tools and content, but also training for librarians so that they have the skills and mindsets to continuously incorporate evolving learning resources, methods and tools into their practice to fulfill the mission of the 21st century library. This is the need the *LLL* Project seeks to address.

As community needs evolve, so do professional expectations within public libraries. For example, librarians at CPL are periodically surveyed about how Library leadership can better support them in delivering on the mission of the library, and they have emphasized a need for professional development in areas now commonly discussed at librarian professional conferences and at IMLS convenings. The *LLL* Project focuses on one of these high priority areas: how can librarians support informal, out-of-school time learning for school age children in STEM content areas, and what professional development and support do they need to do this well?

Why focus this PD on STEM?

About half of Americans say that their local public schools do not put enough emphasis on teaching science and math.¹ In Chicago, like much of the nation, this results in low STEM academic achievement and few young people entering growing STEM careers. For example, in 2013, 91% of CPS middle grade students were at very high risk of not meeting college readiness benchmarks in science.² Access to high quality out-of-school STEM experiences can be limited for low-income and minority families. Only one out of five households takes advantage of STEM-related after-school programming.³ Yet, out-of-school-time STEM learning can empower underrepresented youth by providing learning environments that address their needs through self-directed learning and individual discovery.⁴

The need for robust and integrated science learning outside of schools is clear, but the urgency is higher when we consider that children are at risk of losing knowledge gained during the school year when schools – and quality after-school programs – go on hiatus over the summer. Without meaningful learning opportunities, the summer months are a time of risk for students, and can have negative consequences for their school achievement, healthy development and safety⁵. Research conducted by the National Summer Learning Association indicates children can lose up to 3 months of academic learning during the summer months without access or participation in targeted learning activities. Participation in high quality, summer learning programs can curb these losses, and positively impact key education goals such as achieving grade-level reading benchmarks. Summer learning is a national movement providing high-quality opportunities to as many children and youth as possible, especially those who need it most, and libraries are ideally suited to facilitate this important learning for children. Developing high-quality, hands-on, STEM-focused summer learning programs – particularly those that enhance book-based learning – has shown promising results in both attracting children and their families to libraries in the summer and in helping those children achieve improved academic outcomes once back in school.

¹ <http://www.nsf.gov/statistics/seind12/>

² <https://consortium.uchicago.edu/sites/default/files/publications/Middle%20Grades%20Report.pdf>

³ http://www.changetheequation.org/sites/default/files/CTEq_VitalSigns2011_National_0.pdf

⁴ <http://www.nsf.gov/statistics/seind14/content/etc/nsb1401.pdf>

⁵ <http://journals.sagepub.com/doi/pdf/10.1177/000312240707200202>

And momentum is building. The newly released Urban Libraries Council (ULC) and National Summer Learning Association (NSLA) Toolkit⁶, funded in part by the Institute of Museum and Library Services, points to programs like CPL's *Summer Learning Challenge* as illustrative of the benefit of evolving traditional summer reading into more robust summer learning programs focused on participatory STEM learning experiences. This approach positions libraries as the ideal platform to help students "increase their love of learning and discovery and return to school ready to thrive." The *LLL Project* seeks to capture the framework and professional development embedded in CPL's *Summer Learning Challenge* to allow librarians to lead this transition in their communities.

Why is the LLL Project needed to support STEM-based PD for librarians now?

By leveraging the accessibility of public libraries and community trust in librarians, CPL and MSI have developed a replicable approach to community-based learning that has shown positive academic and social outcomes for children, and empowered librarians to confidently deliver these learning supports for families. As a result, CPL has been approached by over 200 libraries seeking assistance in the design and delivery of participatory learning programs. While the CPL team has widely shared program design concepts and materials, they have been unable to share the most critical and necessary ingredient for delivering high quality learning experiences in libraries: *their hands-on approach to librarian professional development, built through deep collaboration with MSI.*

The *LLL Project* proposes to develop, test, and disseminate a set of tools and resources libraries can use to build the capacity of their staffs to engage young patrons in understanding the fundamental science behind the real-world issues important to them (e.g. the costs of heating homes and the health effects of pollution), while also building partnerships with local STEM-based resources and institutions to enhance this work.

Who will benefit from this work and how the LLL Project meets their needs:

The goal for *LLL* is for the librarians and libraries that receive PD focused on STEM learning to help other libraries adopt the PD and related tools through existing professional networks for broad and ongoing dissemination and impact on librarians throughout the field.

The *LLL Project* materials and associated resources will be co-designed with MSI and tested with librarians within CPL and the King County Library System (KCLS.) Librarians will be the direct beneficiaries of this work, initially in Chicago and King County and, ultimately, throughout the libraries that take advantage of the PD resources developed and broadly disseminated by the project team. The communities these librarians serve and the children participating in the resulting programming will also benefit. In Chicago, more than 100,000 children have participated in the *Summer Learning Challenge* each of the last two summers, and the program recently earned the National Summer Learning Association's Founder's Award for Excellence in Summer Learning for improving math and language arts outcomes among participating children.

CPL and MSI have identified at least 182 children's librarians in Chicago and King County to receive direct training during the life of this grant, so PD materials can be tested and refined with their feedback and through direct observation of their implementation of new skills. Science Supply Kits will be distributed to every branch in both systems following each PD session to reduce barriers to implementation and support librarians in putting their learning to practice immediately. With feedback from librarians, the final tools will be optimized for quality and ease of use for broad and ongoing impact on the skills and confidence of librarians throughout the field.

2. Project Design

Building on lessons learned through the training relationship that CPL's Children's Services team has built with MSI's Department of Community Initiatives over the past five years, this project will create a set of PD resources shaped by CPL's

⁶ http://www.urbanlibraries.org/filebin/pdfs/ULC_NSLA_SummerLearningOnlineToolkit.pdf

and MSI's collective experiences in designing and delivering the annual PD that supports the award-winning *Summer Learning Challenge* across 80 neighborhood libraries.

Over the term of the grant, MSI will co-facilitate professional development with CPL and KCLS librarians to build their capacity to support ongoing PD within their own library systems and broadly in the field. Specifically, the *LLL* Project will build on these successful PD tools, and refine them through Chicago's 80 urban libraries and King County Library System's (KCLS) 48 suburban and rural libraries so that they may be shared with the field through conference sessions, webinars, and online. Other libraries will be able to adapt the PD resources to support participatory learning through free sharing of training materials, national conference presentations, nationally-available webinars and other kinds of peer knowledge sharing and best practices delivered by MSI and CPL. The PD-enhanced supports will help librarians in all communities better facilitate participatory, age-appropriate STEM learning activities for preschoolers and school-aged learners.

The project will assist librarians in gaining an understanding of how they can provide experiences that are aligned with three dimensional learning described in the Next Generation Science Standards. Emphasis will be placed on how out-of-school time STEM learning in libraries can complement the efforts of local schools and reinforce core concepts students are expected to learn in formal education. CPL and MSI work closely with their counterparts in the Chicago Public Schools to coordinate efforts and strategies for strengthening library-school relationships. The lessons learned in Chicago will be shared with KCLS to empower their leadership and individual librarians to continue building connections with their local schools.

This work builds on strengths:

The *LLL* Project builds upon CPL's strengths in operationalizing a robust STEM learning initiative across 80 sites for four years and MSI's work in supporting out-of-school time science learning and engaging youth from backgrounds traditionally underrepresented in STEM fields. MSI was the foundational partner for the design of the *Summer Learning Challenge*, CPL's STEM-based summer program. KCLS, the field test partner for this project, has also established a strong interest in deepening its summer learning program. At the invitation of KCLS leadership, project leads from CPL and MSI provided two days of professional development for librarians in the spring of 2016, setting the stage for the proposed long-term collaboration.

Activities required for the LLL Project:

The *LLL* Project begins with the 2017 *Summer Learning Challenge* as a laboratory for observing and documenting the PD approach already in place among CPL and MSI. Following the 2017 summer session, content will be refined and tested with input from CPL and KCLS librarians and input from an advisory committee of diverse experts. The 2018 *Summer Learning Challenge* PD will reflect this ongoing refinement and be delivered to both CPL and KCLS librarians in early 2018 in preparation for the delivery of a STEM-based *Summer Learning Challenge* in summer 2018 across both library systems. This approach will again be assessed and refined in preparation for another round of PD in early 2019 for *Summer Learning Challenges* in both systems. The attached supplemental document (titled "Curriculum.pdf") outlines the 3 strands of professional development that will be designed as part of the project along with instructional resources that will be created to support librarians with implementation. This document also includes a description of the activities and science supply kits that will be distributed through the project. The timeframe for the *LLL* Project is three years from receipt of the grant. Please see the attached schedule of completion for a full list of activities (titled "Scheduleofcompletion.pdf").

In order to help librarians creatively involve community members to assist with the implementation of STEM activities in their libraries, the project team will also explore strategies to effectively involve teen interns in program delivery. High school students participating in MSI's Science Minors and Science Achievers youth development programs will be hired into paid summer internships and will work in 32 CPL branches each year of the grant period. The teens will learn to lead STEM activities with younger audiences, positioning them as ambassadors for STEM, and supporting librarians in expanding the programming available to youth and families. After testing and documenting this program element, guidelines for integrating

teens as supports to program implementation will be introduced to the KCLS librarians as they prepare to implement their Summer Learning Challenge in 2019.

Integrating evaluation methods to measure results:

CPL and MSI seek to measure library staff knowledge of and attitudes toward STEM concepts, changes in library staff practice (integration of STEM activities, levels of implementation, etc.) as a result of the PD and the use of the program materials. During the *LLL* Project, CPL and MSI will seek regular feedback from CPL and KCLS librarians on the quality and relevance of the PD received and materials created. Regular evaluation through surveys and observation will provide iterative feedback on the development of program components, including, but not exclusive of, evaluation surveys administered after each Professional Development session, as outlined in the Schedule of Completion. The project team will also collect observation data informing quality of implementation in both Chicago and King County.

The team will measure change in librarian attitudes and behaviors by adapting and administering an externally validated instrument used by MSI for assessing educator professional development at the start and end of the project period. Example topics addressed include: how often librarians do the science activities alongside their program participants (as opposed to demonstrating an experiment followed by asking participants to replicate what they saw), how often they ask participants to create their own questions, how often they use physical materials, etc. Project staff will administer targeted surveys at multiple times throughout the year following each PD session to get quick, unfiltered responses from the teachers that can be analyze to determine behavioral changes as the project progresses. In addition, the rapid response surveys will help the project team learn which activities and lessons they are using in their programs. Combined with observations and implementation logs, these measures will provide a robust view into whether or not librarian behavior and attitude changed between the start and end of the project, how it changed within each year of the project, and how prepared the librarians feel to meet the learning needs of the children they serve. Results across both library systems will be explored to determine the overall impact of the project on librarians, as well as differences that may occur between urban, suburban, and rural settings.

How progress will be tracked:

At least 182 librarians from CPL and KCLS will participate in professional development and program design sessions held during the design phase of this project, both in person and virtually. Librarians' feedback will help refine the tools and determine how more broadly-distributed PD resources are to be structured to maximize relevance and ease of use for any community. CPL and MSI will measure library staff knowledge of and attitudes toward STEM concepts, changes in library staff practice (integration of STEM activities, facilitation skills, levels of implementation, etc.) as a result of the PD, and the use of the program materials in Chicago and King County.

In addition to assessing the quality of the PD through observation and surveys, CPL will also track the number and type of libraries beyond Chicago and King County that request access and use the PD resources developed by the *LLL* Project, particularly as progress is shared along the way with peers in other library systems. Long term, CPL will track how many of the libraries that accessed the PD resources developed with this grant go on to implement robust STEM learning activities. Finally, and as part of broader patron evaluation efforts to determine quality and demand for programs, student interest in and comfort with STEM concepts may be assessed in a self-report tool.

What the partnership looks like:

Through the *LLL* Project, CPL and MSI will continue to sharpen their shared vision for serving children through informal, out-of-school time STEM learning. CPL and MSI plan to deepen summer STEM programming and have begun to expand it into the school year through year-round afterschool science clubs and family programs, increased access to MSI for family library patrons, and co-development of family STEM experiences for CPL's *Winter Learning Challenge* and *Spring Learning Challenge*.

To accomplish this, CPL and MSI will provide professional development to the system's children's librarians on STEM concepts and facilitation of informal science learning. MSI will also support CPL in their implementation of STEM programming in libraries by managing a cohort of MSI trained teen interns to facilitate learning experiences for younger audiences at 32 CPL branches. Additionally, CPL and MSI commit to partnership with the KCLS to co-train its leadership and librarians on implementation of the *Summer Learning Challenge* and the STEM facilitation concepts that undergird the program. This collaborative work is a priority for both CPL and MSI, and formalizing the PD content and delivery mechanisms will benefit both partners and create an implementation model for the field. This project will build on and refine existing work. An excerpt of a sample training document used for the 2015 *Summer Learning Challenge* PD is attached (titled "Supportingdoc14.pdf"), along with an excerpt of the accompanying *Summer Learning Challenge* participant booklet from 2015 (titled "Supportingdoc15.pdf").

CPL and MSI have been formal partners on the Summer Learning Challenge since 2012, and it has been a relationship with mutual benefit. The enhanced partnership through this grant will ensure that this work benefits librarians and communities across the country, particularly given the involvement of KCLS as a field test partner for this work. If awarded, CPL will be the primary grant recipient, and MSI would be a sub-awardee. The King County Library System will participate in the development, testing and refinement of librarian PD. KCLS is a system outside Seattle with a blend of suburban and rural libraries. KCLS leadership is eager to provide its librarians with this type of training, and has requested support from CPL in recent years on STEM and summer learning program implementation. All work involved in this sub-project of the *LLL* Project will be created collaboratively between CPL and MSI, with input from KCLS. Please see the attached letters of commitment to this project from MSI ("Supportingdoc1.pdf") and KCLS ("Supportingdoc2.pdf").

Contributions and Benefits of Key Partners:

For the *LLL* Project, CPL will contribute significant staff time, not only from key project staff, but also all CPL children's librarians who will participate in the training, provide feedback, and respond to refinements. In addition, CPL will contribute training space, as well as, support to other library systems in the form of conference speaking engagements, workshops, webinars, coaching and mentorship, and in publications that inform the field. CPL believes that increasing librarians' skills in STEM program facilitation will enhance the caliber of the librarian population overall and better serve communities.

CPLF, CPL, and MSI will convene an Advisory Committee to guide this project over the life of the grant. CPL has confirmed nine members of the Advisory Committee, listed below (letters of commitment are also attached to this proposal, titles referenced below):

- Matthew Boulay, Chief Executive Officer (Interim), National Summer Learning Association ("Supportingdoc3.pdf")
- Margaret Glass, Director, Professional Development, Association of Science-Technology Centers (ASTC), ("Supportingdoc4.pdf")
- Michael Lach, Director of STEM Policy and Strategic Initiatives, University of Chicago ("Supportingdoc5.pdf")
- Barb Macikas, Executive Director, Public Library Association, ("Supportingdoc6.pdf")
- Emily Samose, Director, Education and Learning Initiatives, Urban Libraries Council ("Supportingdoc7.pdf")
- Dennis Schatz, Senior Advisor, Pacific Science Center and Field Editor of the National Science Teachers Association Journal Connected Science Learning ("Supportingdoc8.pdf")
- Philipp Schmidt, Director of Learning Innovation, MIT Media Lab ("Supportingdoc9.pdf")
- Felton Thomas, Jr., CEO and Executive Director, Cleveland Public Library ("Supportingdoc10.pdf")
- Gina Warner, President, National Afterschool Association, ("Supportingdoc11.pdf")
- Gary Wasdin, Director of King County Library System ("Supportingdoc12.pdf")

In addition, CPL leaders will ensure that materials developed as part of this project are shared with partners at Chicago Public Schools to ensure alignment and continued learning. Lisa Perez, Manager of Libraries at CPS, has offered to provide feedback on materials, and to support the work in general. (See "Supportingdoc13.pdf").

MSI's Center for the Advancement of Science Education (CASE) is home to all of MSI's education initiatives, including the Community Initiatives work where the *Summer Learning Challenge* is co-developed. The work of CASE is also the platform for MSI's science professional development programming that supports elementary and middle school teachers from over 40% of CPS schools and a network of out-of-school time educators from over 100 community-based afterschool program providers. MSI will build on this experience by contributing staff time and the development of the materials that are included in the *Summer Learning Challenge* booklets used by children and families and the PD materials for librarians. In addition, MSI works with a cohort of 50 high school and 6 college students throughout the year to facilitate STEM experiences with public audiences in the Museum and in the community. Half of these students are dedicated to delivering STEM programming at 32 CPL branches as part of their summer employment with MSI. MSI has committed nearly \$1.2M over the past 4 years to support STEM-based summer learning in Chicago in collaboration with CPL, including institutional funds, philanthropic funding, corporate sponsorship, and federal dollars through NASA. For MSI, this partnership is critical to ensuring ongoing engagement with the wider community in STEM related learning.

Outcomes of our work will be made widely available:

The project team will design, test and deliver PD resources and accompanying materials through multiple modes, to be made available through Public Library Association, Urban Libraries Council, National Summer Learning Association, the National Afterschool Association and other relevant sources of information for librarians. These modes include:

- Face-to-face facilitated sessions for librarians, delivered at libraries, conferences and with partner institutions;
- Written step-by-step activity guides for these sessions, made widely available for libraries to use;
- Webinars designed and offered through national library networks;
- Program implementation materials, including sample lessons, supporting videos and activity and facilitators' guides, shared online and through relevant professional networks, like those mentioned above.

Communicating our success:

To date, CPL has been very public about its collaboration with MSI to develop the *Summer Learning Challenge* guides and PD to serve Chicago's children and families. This work was recognized recently with the National Summer Learning Association's Founder's Award, which raised the profile of this collaboration and its potential to transform library practice to a broad audience. This wide coverage has resulted in even more interest in CPL and MSI co-presenting at professional conferences, which they are committed to continuing.

If awarded an IMLS grant to fund the *LLL* Project, CPL will collaborate with MSI and KCLS marketing teams to coordinate press releases, e-blasts, and other announcements to promote the professional development work associated with the grant. Outreach efforts will extend beyond CPL's system to the wider library field, through industry publications, such as *Library Journal* and others. Based on prior experience among the three major *LLL* partners, CPL expects to be able to achieve broad dissemination of the *LLL* work product through existing networks in libraries and the broader learning communities represented through its project partners.

If awarded an IMLS grant to support the *LLL* Project, CPL will manage a cross-organization project management team led by Andrea Sáenz, First Deputy Commissioner, and Elizabeth McChesney, Director of Children's Services, and align messaging and timing for announcements across print, electronic and social media. CPL envisions a sustained messaging plan that communicates about the project, and more importantly, about the results of this work. The project management team will meet quarterly to review progress and determine appropriate communication about that progress and upcoming activities to all appropriate outlets.

As PD materials are finalized throughout the course of the grant, they will be published and released online, with appropriate promotional events for key stakeholders and contributing librarian participants. Key project staff will seek conference and other speaking opportunities to promote this work throughout the life of the grant, such as library focused conferences convened by the Public Library Association (PLA), American Library Association (ALA), Association for Library Service to Children (ALSC), Young Adult Library Services Association (YALSA), Urban Libraries Council (ULC), and the

Institute of Museum and Library Services (IMLS), and also conferences outside the library field, such as the Association of Science Technology Centers (ASTC), National Summer Learning Association (NSLA), National Afterschool Association (NAA), and SXSWedu. At the conclusion of the grant period, a formal case study on the work will be created by the project management team, distributed to the IMLS as part of the final report, and shared broadly within the field.

CPL is highly motivated to make the materials produced as a result of this grant available to libraries across the country. CPL is often contacted by peer libraries to share its methods for training librarians. While it appreciates these opportunities, CPL remains aware that responding to information requests from individual libraries is inefficient and less effective for the wider field. Developing a standard and replicable set of materials to support librarian learning in STEM programming facilitation will allow CPL to be a thought partner to libraries in all communities in an efficient and consistent way, to provide the highest quality training to CPL librarians and to strengthen the field as a whole.

Key project staff:

Please see the attached list of key project staff (titled “Projectstaff.pdf”). In addition, Kate Nardin, Director of Institutional Giving for CPLF, will be the primary point of contact for reporting to IMLS for the LLL Project. For this project, CPLF is the primary awardee because the Foundation serves as the Library’s funding partner. As a result, if awarded, CPL will be the primary project lead, and MSI will be a sub-awardee.

Facilities, equipment and supplies:

Professional development for CPL librarians takes place in branches, in auditoriums and large meeting spaces at the main branch and at partner institutions, like MSI. Materials developed for this project will require the use of existing recording equipment, video editing, and online tools (e.g. blogs). Travel for KCLS librarians will be required for initial training, as well as, for one or two project team members between CPL and MSI to provide on-site training for KSLC librarians. Science Supply Kits will be provided to each participating library branch following each PD session to ensure that all participants have access to the materials required for successful implementation.

Financial considerations:

Significant matching funds for this grant will largely come in the form of salaries for CPL project staff and CPL librarians participating in and providing feedback on training and PD refinement. There will also be significant matching costs provided by MSI throughout the project period. CPLF, CPL and MSI do not anticipate revenues resulting from this project.

3. Diversity Plan

While Chicago’s diverse neighborhood libraries have served as the initial laboratories for this work, this grant will benefit the field broadly. CPL’s choice of partners for this project – the Museum of Science and Industry and King County Library System – reflects its sustained commitment to leading-edge, high quality development opportunities for librarians that are relevant to librarians in communities of all types.

The target patron audiences for this project mirror the diversity of Chicago and its neighborhoods. In particular, low-income communities, that typically have limited access to high quality out-of-school learning options, will benefit from this project as the learning opportunities that are made available to them are strengthened and refined to better meet their needs. Throughout the grant, this work will also be tested in suburban and rural settings via the partnership with King County Library System. The broad geographic and demographic mix of the two primary sites demonstrates CPL’s belief that this work is relevant for librarians across greatly diverse communities. CPL and MSI have compiled an initial draft of conditions for success for this work that are applicable to libraries of all types (see attached “Supportingdoc3.pdf”).

The work funded by this grant will help libraries in these communities continue to emphasize innovation for staff of all experience levels. This project will encourage libraries’ experimentation and exploration, while helping librarians see themselves as learners alongside library patrons.

4. National Impact

This work will have positive impact broadly in the field: The *LLL* Project is relevant to the **Community Anchors** category because it will make the tools, processes, methodologies and mindsets associated with effective participatory learning accessible to librarians, enabling them to support patrons' lifelong learning through relevant programming and services. The *LLL* Project brings together two of Chicago's premier institutions, Chicago Public Library and the Museum of Science and Industry, around a common goal. The project will build the capacity of library professionals to integrate participatory STEM learning into programming, and to expand their skills for effectively engaging youth and families. Thus, librarians will be better positioned to serve community needs.

Each of CPL's 80 branches serves as an anchor for its community, providing access to high quality information and civic, cultural and educational resources, while offering expanded learning opportunities for children and families that bridge formal learning with the real world. Through the strong relationships library staff have in communities, they have become a conduit for bringing the resources of the Museum of Science and Industry into Chicago's neighborhoods and building a community-based presence for science.

The *LLL* Project seeks impact beyond Chicago and King County, and our proposed work is structured to have broad impact quickly. This will be achieved through:

- Training at least 182 professional library staff, representing 128 urban, suburban and rural libraries, in these participatory instructional methods. With their feedback, resources will be optimized for quality and ease of use for broad and ongoing impact on the skills and confidence of librarians throughout the field.
- The design and wide dissemination of project deliverables, including activity guides, handbooks, and web-based materials through at least six presentations and workshops at national library conferences and meetings;
- Providing peer mentorships to help librarians beyond the initial cohort sustain and build upon these skills and tools after the term of this project has ended.

This work will transform practice: The way people learn is changing, and how they utilize libraries to support that learning is changing along with it. Building librarians' comfort and skill in planning and leading active learning across the patron lifespan, including hands-on STEM learning, increases the chances that librarians will initiate this work and do it well. This has been the case for the librarians in Chicago who have participated in PD through the foundational program, the *Summer Learning Challenge*, upon which the *LLL* Project is built. As librarians gain skill and confidence in forging partnerships and opening the doors to their libraries for learning in all forms, library users will continue to turn to their local library for additional learning opportunities, even beyond STEM topics.

CPL, along with MSI, are motivated to create additional reasons for people of all ages to visit and spend time in the library and to access resources in their community and online. CPL also expects that, by making librarian skill development in these critical areas accessible and relatively easy to implement, libraries can ensure that patrons will continue to see their librarian as a guide for learning. By delivering professional development that both expands the skills of individual library staff and builds the organizational capacity of libraries, the *LLL* Project will maximize the opportunity for making lasting change well beyond the grant period.

Ultimately, the librarians who receive this PD will serve as amplifiers by promoting and helping other librarians adopt the PD and related tools through professional networks.

What success looks like: CPL and MSI have modeled an iterative development process over the four-year Summer Learning Challenge collaboration, integrating feedback from training sessions with librarians to improve the program each year. For the *LLL* Project, CPL and MSI want to ensure that the performance measures align with other projects in the Learning category, as outlined on the Program Information Sheet. Within this category, CPL and MSI have selected "train

and develop museum and library professionals” as the IMLS agency-level goal for the *LLL* Project. Through annual surveys of librarians participating in PD developed through this grant, CPL and MSI will collect evidence of growth in librarian learning, and utilize this data to both improve iterations of the PD resources, and report on progress to IMLS. CPL and MSI seek the following outcomes at minimum:

Performance Measure Statement	Outcome Category	Performance Targets		
		Year 1	Year 2	Year 3
My understanding has increased as a result of this program/training: Strongly Agree Agree Neither Agree, nor Disagree Disagree Strongly Disagree	Number of participants	At least 182	At least 182	At least 182
	Number of total respondents	<80% of total participants	<80% of total participants	<80% of total participants
	Number of responses per answer option	<70% choosing “Strongly Agree” or “Agree”	<75% choosing “Strongly Agree” or “Agree”	<80% choosing “Strongly Agree” or “Agree”
	Number of non-respondents	<20% of total participants	<20% of total participants	<20% of total participants
My interest in this subject has increased as a result of this program/training: Strongly Agree Agree Neither Agree, nor Disagree Disagree Strongly Disagree	Number of participants	At least 182	At least 182	At least 182
	Number of total respondents	<80% of total participants	<80% of total participants	<80% of total participants
	Number of responses per answer option	<80% choosing “Strongly Agree” or “Agree”	<85% choosing “Strongly Agree” or “Agree”	<90% choosing “Strongly Agree” or “Agree”
	Number of non-respondents	<20% of total participants	<20% of total participants	<20% of total participants
I am confident I can apply what I learned in this program/training: Strongly Agree Agree Neither Agree, Nor Disagree Disagree Strongly Disagree	Number of participants	At least 182	At least 182	At least 182
	Number of total respondents	<80% of total participants	<80% of total participants	<80% of total participants
	Number of responses per answer option	<60% choosing “Strongly Agree” or “Agree”	<65% choosing “Strongly Agree” or “Agree”	<70% choosing “Strongly Agree” or “Agree”
	Number of non-respondents	<20% of total participants	<20% of total participants	<20% of total participants

How this work will be sustained: Materials created as part of the LLL Project will be distributed on the CPL website, which is maintained for the greater good of CPL and extends beyond this project. The Summer Learning Challenge will remain an ongoing programming initiative at CPL, and STEM programming has begun to be extended into the school year through CPL participation in MSI's Afterschool Science Minors Clubs program. Coaching and supporting librarians in the delivery of this high-quality programming will naturally become a part of the library's ongoing professional development plans and budgets. Similarly, MSI has an ongoing interest and stake in this work. MSI will promote, maintain, and invest in the results of the work funded by this grant on an ongoing basis, as there is a high degree of mission alignment and shared goals.

CPL is invested in building expertise among librarians. To date, collaboration between CPL and MSI has transformed CPL's approach to enriching patrons' learning experiences – particularly among school-age youth and their families. CPL offers higher quality lifelong learning opportunities that would not be possible were it not for this partnership. The *LLL* Project will allow us to combine our experiences and pedagogies to create high-quality PD materials that help librarians, inside and outside CPL, become more effective and confident facilitators of learning in libraries. By developing materials to train leaders of PD, in addition to librarians, the impact of the *LLL* Project will extend beyond those who participate in the training directly. Librarians in communities of every size who want to support these modes of learning will now have access to free, modular, step-by-step instructions that they can use to improve learning opportunities for their communities.

Any content developed by CPL as part of this grant will be available for public use. MSI would expect to retain the copyright to the *Summer Brain Games* materials and any associated training or PD material developed to support the work, although it would be available for free to download from the MSI website or other platform as deemed preferable.

DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (i.e., digital content, resources, assets, software, and datasets). The products you create with IMLS funding require careful stewardship to protect and enhance their value, and they should be freely and readily available for use and re-use by libraries, archives, museums, and the public. However, applying these principles to the development and management of digital products can be challenging. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

Instructions

You must provide answers to the questions in Part I. In addition, you must also complete at least one of the subsequent sections. If you intend to create or collect digital content, resources, or assets, complete Part II. If you intend to develop software, complete Part III. If you intend to create a dataset, complete Part IV.

PART I: Intellectual Property Rights and Permissions

A.1 What will be the intellectual property status of the digital products (content, resources, assets, software, or datasets) you intend to create? Who will hold the copyright(s)? How will you explain property rights and permissions to potential users (for example, by assigning a non-restrictive license such as BSD, GNU, MIT, or Creative Commons to the product)? Explain and justify your licensing selections.

MSI would expect to retain the copyright to the Summer Brain Games materials and any associated training or PD material developed to support the work, even though they will be freely available to the public.

A.2 What ownership rights will your organization assert over the new digital products and what conditions will you impose on access and use? Explain and justify any terms of access and conditions of use and detail how you will notify potential users about relevant terms or conditions.

Per A1, MSI will assert ownership over any new content for the primary purpose of publishing under an open license. Content will be published on openly accessible websites. There will be no conditions or terms imposed on access and use.

A.3 If you will create any products that may involve privacy concerns, require obtaining permissions or rights, or raise any cultural sensitivities, describe the issues and how you plan to address them.

N/A

Part II: Projects Creating or Collecting Digital Content, Resources, or Assets

A. Creating or Collecting New Digital Content, Resources, or Assets

A.1 Describe the digital content, resources, or assets you will create or collect, the quantities of each type, and format you will use.

The materials and resources developed as part of this project will include:

- PowerPoint presentations to guide face-to-face facilitated sessions for librarians, delivered at libraries, conferences and with partner institutions (up to 10);
- Written step-by-step activity guides for these sessions, made widely available for libraries to use (up to 10);
- Webinars designed and offered through national library networks to learn about this work (up to 10);
- Program implementation materials, including sample lessons, supporting videos and Activity and Facilitators' Guides, shared online and through relevant professional networks, like those mentioned above (as needed).

A.2 List the equipment, software, and supplies that you will use to create the content, resources, or assets, or the name of the service provider that will perform the work.

All content will be developed on standard PC hardware, with graphic design software utilized for aesthetics. The content and resources will be developed in-house at MSI and CPL.

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG) you plan to use, along with the relevant information about the appropriate quality standards (e.g., resolution, sampling rate, or pixel dimensions).

Any written materials, guides, sample lessons, etc. will be published as:

- 'offline' editions: content will be print-quality, 300dpi PDF and appropriate for both color and greyscale printing.
- 'online edition' in modern HTML5 (downloadable as PDFs from MSI and CPL websites, or shareable via email)

Template resources - where appropriate will be published as download-ready files, as JPEGs and PDFs.

- Print quality, 300dpi where appropriate

B. Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan (i.e., how you will monitor and evaluate your workflow and products).

Content: will be co-designed between MSI and CPL, through a workflow including:

- preliminary drafting using content experts at MSI
- input from librarians on content drafting and design
- field testing and iteration of draft content during multiple rounds of PD
- review of content by senior library personnel, grant advisory committee, and MSI instructional advisors
- final approval of materials by all stakeholders of the grant, namely: MSI, CPL, and CPLF.
- Design oversight by MSI Communications Department

B.2 Describe your plan for preserving and maintaining digital assets during and after the award period of performance. Your plan may address storage systems, shared repositories, technical documentation, migration planning, and commitment of organizational funding for these purposes. Please note: You may charge the federal award before closeout for the costs of publication or sharing of research results if the costs are not incurred during the period of performance of the federal award (see 2 C.F.R. § 200.461).

All resources and tools developed as part of this grant will be saved electronically on both MSI and CPL servers, as well as linked to the MSI and CPL websites. These are resources which are funded separately and independent from the IMLS grant, and will exist through and past the lifespan of this grant.

C. Metadata

C.1 Describe how you will produce any and all technical, descriptive, administrative, or preservation metadata. Specify which standards you will use for the metadata structure (e.g., MARC, Dublin Core, Encoded Archival Description, PBCore, PREMIS) and metadata content (e.g., thesauri).

N/A

C.2 Explain your strategy for preserving and maintaining metadata created or collected during and after the award period of performance.

N/A

C.3 Explain what metadata sharing and/or other strategies you will use to facilitate widespread discovery and use of the digital content, resources, or assets created during your project (e.g., an API [Application Programming Interface], contributions to a digital platform, or other ways you might enable batch queries and retrieval of metadata).

N/A

D. Access and Use

D.1 Describe how you will make the digital content, resources, or assets available to the public. Include details such as the delivery strategy (e.g., openly available online, available to specified audiences) and underlying hardware/software platforms and infrastructure (e.g., specific digital repository software or leased services, accessibility via standard web browsers, requirements for special software tools in order to use the content).

All content and tools developed as a result of this project will be available and free to the public through both the MSI and CPL websites.

D.2 Provide the name(s) and URL(s) (Uniform Resource Locator) for any examples of previous digital content, resources, or assets your organization has created.

MSI Summer Brain Games from prior years along with supporting resources are available on the MSI website at:

<http://www.msichicago.org/experiment/summer-brain-games/>

Part III. Projects Developing Software

A. General Information

A.1 Describe the software you intend to create, including a summary of the major functions it will perform and the intended primary audience(s) it will serve.

N/A

A.2 List other existing software that wholly or partially performs the same functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

N/A

B. Technical Information

B.1 List the programming languages, platforms, software, or other applications you will use to create your software and explain why you chose them.

N/A

B.2 Describe how the software you intend to create will extend or interoperate with relevant existing software.

N/A

B.3 Describe any underlying additional software or system dependencies necessary to run the software you intend to create.

N/A

B.4 Describe the processes you will use for development, documentation, and for maintaining and updating documentation for users of the software.

N/A

B.5 Provide the name(s) and URL(s) for examples of any previous software your organization has created.

N/A

C. Access and Use

C.1 We expect applicants seeking federal funds for software to develop and release these products under open-source licenses to maximize access and promote reuse. What ownership rights will your organization assert over the software you intend to create, and what conditions will you impose on its access and use? Identify and explain the license under which you will release source code for the software you develop (e.g., BSD, GNU, or MIT software licenses). Explain and justify any prohibitive terms or conditions of use or access and detail how you will notify potential users about relevant terms and conditions.

N/A

C.2 Describe how you will make the software and source code available to the public and/or its intended users.

N/A

C.3 Identify where you will deposit the source code for the software you intend to develop: N/A

Name of publicly accessible source code repository:

URL:

Part IV: Projects Creating Datasets

A.1 Identify the type of data you plan to collect or generate, and the purpose or intended use to which you expect it to be put. Describe the method(s) you will use and the approximate dates or intervals at which you will collect or generate it.

N/A

A.2 Does the proposed data collection or research activity require approval by any internal review panel or institutional review board (IRB)? If so, has the proposed research activity been approved? If not, what is your plan for securing approval?

N/A

A.3 Will you collect any personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information? If so, detail the specific steps you will take to protect such information while you prepare the data files for public release (e.g., data anonymization, data suppression PII, or synthetic data).

N/A

A.4 If you will collect additional documentation, such as consent agreements, along with the data, describe plans for preserving the documentation and ensuring that its relationship to the collected data is maintained.

N/A

A.5 What methods will you use to collect or generate the data? Provide details about any technical requirements or dependencies that would be necessary for understanding, retrieving, displaying, or processing the dataset(s).

N/A

A.6 What documentation (e.g., data documentation, codebooks) will you capture or create along with the dataset(s)? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the dataset(s) it describes?

N/A

A.7 What is your plan for archiving, managing, and disseminating data after the completion of the award-funded project?

N/A

A.8 Identify where you will deposit the dataset(s): N/A

Name of repository:

URL:

A.9 When and how frequently will you review this data management plan? How will the implementation be monitored?

N/A