Museums for America

Sample Application MA-10-14-0353-14
Project Category: Learning Experiences
Funding Level: $25,001-$150,000

Bakken

Amount awarded by IMLS:	$146,000
Amount of cost share:	$146,188

Attached are the following components excerpted from the original application.

- Abstract
- Narrative
- Schedule of Completion

ABSTRACT

The Bakken requests funding to produce *Mary and Her Monster: Mary Shelley and the World that Created Frankenstein*. In this hands-on, immersive exhibit, visitors will explore the life of Mary Wollstonecraft Shelley, the teenage author of *Frankenstein* (1818), through the lenses of history, literature, and science. The exhibit will serve 400,000 to 500,000 visitors from the Twin Cities Metro area and beyond during its 10-12 year run. It is designed for the Bakken's core audiences: *Curious Children and Youth*, age 6-19, many of whom visit on school field trips; *Learning Families* with children age 4-14; and *Engaged Adults*. By providing a compelling gateway to science, the exhibit is designed to meet the need of our increasingly diverse audience for innovative experiences that foster the new skills and heightened engagement with STEM learning necessary for success in the 21st century. Shelley's story offers a remarkably relevant and inclusive vision of the many ways to think about, talk about, be inspired by, and participate in science.

Project activities center on the development, design, fabrication, and installation of *Mary and Her Monster*. The exhibit will be an interactive, set-like environment evoking an early 19th-century parlor—the kind of space where Shelley might have socialized with her friends and family, learned about science, and traded stories. Incorporating multi-media elements alongside historical books and artifacts, the 500-sq.-ft. exhibition will invite visitors to investigate Shelley's life and the science that inspired the writing of Frankenstein.

Mary and Her Monster builds upon an established roster of Mary Shelley-related programs at the Museum, and will feature items from The Bakken's significant collection of 18th- and 19th-century scientific instruments and books. It will occupy a space adjacent to one of the museum's most popular exhibits, *Frankenstein's Laboratory*, an object theater that uses an atmospheric set incorporating relevant historical objects to retell the Frankenstein story. *Mary and Her Monster* will foreshadow and provide important context for this existing exhibit, and their close thematic and spatial connection will create, in effect, an 850-sq.-ft. exhibition.

The Bakken developed a logic model and conducted audience research to formulate and refine a set of outcomes for the exhibit comprising four areas of impact. They are designed to fulfill learning needs as outlined in recent initiatives by the Institute for Museum and Library Services (IMLS) and the National Research Council (NRC). The areas of impact are: 1) learning about Shelley's biography to create a meaningful personal connection with her; 2) reflecting on the ethical issues raised by Shelley; 3) developing an understanding of science as a way of knowing that is affected by and affects its broader historical and social context; and 4) developing enthusiasm for science by finding and sharing interest and meaning in it. A substantial evaluation plan, conducted in collaboration with Cheryl Kessler of Blue Scarf Consulting (Minneapolis, MN), will guide development and design as well as assess the impact of the exhibit.

The Bakken is a museum and library committed to preserving and communicating the history and nature of electricity and magnetism through world-class historical book and artifact collections, exhibits, and science education programming. The museum is guided by its mission to "inspire a passion for science and its potential for social good," using a powerful blend of science, history, literature, and the arts. Approved in early 2009, this mission and an accompanying strategic plan provided the foundation for the development of the *Learning Framework* and an *Exhibit Master Plan* to guide exhibit renewal throughout the Museum's 3200 sq. ft. of exhibition space. The completion of *Mary and Her Monster* is a key step in the implementation of the *Exhibit Master Plan*.

The project will begin on December 1, 2014 and end April 30, 2017, with the exhibition opening in October 2016. The total cost of the project is $308,985. The Bakken requests $150,000 from IMLS, representing 49% of the total project cost. The Bakken will provide matching funds of $158,985 from unrestricted funds and/or restricted funds.

1. PROJECT JUSTIFICATION

Project

Recent national calls for changes in education have highlighted the new skills and heightened understanding of science and engineering that all citizens will need in the 21st century. Locally, increasing diversity in the Twin Cities metro area and an on-going effort to engage girls with science have made vital the development of inclusive and inspiring learning experiences that foster these new skills and engage broader interest in STEM learning. To meet this need, The Bakken (Minneapolis, MN) requests a grant from the Institute for Museum and Library Services (IMLS) in the amount of $150,000 for *Mary and Her Monster: Mary Shelley and the World that Created Frankenstein*, an immersive exhibition based on the life of the teenage author of *Frankenstein* (1818). This exhibition will provide the kind of innovative experience that will captivate potential STEM learners and empower them to express their own views on science-related issues.

With support from IMLS, The Bakken will develop, design, fabricate, install, and evaluate this 500-sq.-ft. experience, which will engage visitors in exploring the life of Mary Wollstonecraft Shelley (1797-1851) and the science that inspired the writing of *Frankenstein*. By building upon and providing a new, important context for the Museum's popular *Frankenstein's Laboratory*, a 350-sq.-ft. object theater that presents an excerpt from Mary Shelley's famous tale, it will, in effect, create an 850 sq. ft. exhibition. *Mary and Her Monster* will also connect with existing, related programs and provide a platform to expand that successful programming. The exhibition is expected to serve 400,000 to 500,000 children, youth, and adults during its anticipated 10-12 year run. We expect that the upcoming 200-year anniversary of the novel will fuel public interest in Mary's story, and we hope to capitalize on that interest by opening the exhibition in 2016, the anniversary of the year she began writing her novel.

As a young woman, Mary Shelley challenged the conventions of her time through her life and her art. Her pioneering novel about a man-made monster and the consequences of its creation raised ethical questions about science that we still grapple with today. Mary grew up in a time and place in which interdisciplinary thinking was common, and her story highlights ways in which science, art, and literature can interact and be sources for creative imagination and social critique. Mary's engagement with diverse fields of learning might have been common in the early 19th century, but as a young woman writing at a time when learned pursuits were dominated by men, she defied notions about the place of women in science. Surrounded by famous and fascinating friends and family who shared a love of learning, the exchange of ideas, and creative pursuits, Mary provides an attractive model for others who share these ideals today. Mary's story will offer a more inclusive vision of the many ways to think about, be inspired by, and participate in science.

The Bakken has an award-winning record of educational programming with Twin-Cities-metro-area school districts, and a long-standing tradition of exhibits that fuse science, engineering, history, and the arts. In keeping with this tradition, *Mary and Her Monster* will incorporate history, biography, literature, and popular culture to provide a compelling gateway to STEM education for new and returning visitors, particularly those whose interests draw them more readily to the arts and humanities than the sciences, and those who do not see themselves as science learners. Our humanistic approach to science makes The Bakken particularly well-suited to show how Mary's own story—as well as the famous novel she wrote—are as relevant today as they were two centuries ago.

Need/Challenge

The Bakken has conducted several evaluation projects aimed at assessing the needs and interests of our visitors in relation to the themes and activities planned for *Mary and Her Monster*. In August 2011, staff conducted a focus group discussion with 7th-9th graders (n=19) to explore their interest in and pre-conceptions about exhibit topics. Participants expressed surprise at the identity of the author of *Frankenstein* and strong interest in her personal life, suggesting this topic will be key for engaging youth with the exhibition.

Front-end evaluation was expanded and refined in Fall 2012, when staff worked with Cheryl Kessler (Blue Scarf Consulting, Minneapolis, MN) to conduct a logic model session, visitor survey (n=49), and focus group session with primary and middle-school teachers (n=4). The survey indicated strong interest in all of the topics proposed for the exhibition and in two topics in particular: the science that inspired Mary Shelley and how science was different in

Mary's day. In addition, visitors' familiarity with the novel was stronger than their knowledge of Mary Shelley, making the novel a logical path to the story of the author. Teachers expressed strong interest in Mary's story as a vehicle for asking students to reflect on identity and participation in science, and noted the story's potential to inspire students' own creativity and enthusiasm for science. Teachers remarked that Mary's age at the time she wrote *Frankenstein* made her "accessible" to students, and that her story could inspire students to identify with her and "feel they also could do this." (See supplementary documents for the front-end report and full logic model.)

The outcomes developed through the logic-model process are designed to fulfill learning needs as outlined in recent initiatives by IMLS and the National Research Council (NRC). Drawing from the Partnership for 21st Century Skills framework of competencies needed by students, workers, families, and citizens to succeed in the new century, IMLS published *Museums and Libraries and 21st Century Skills* (2009) to formulate ways that informal learning institutions can contribute to the development of important skills. Key skills from this project that specifically align with the *Mary and Her Monster* project include creativity and innovation, cross-disciplinary thinking, and the demonstration of ethical behavior and social responsibility.

Similarly, the NRC's study, *Learning Science in Informal Environments* (*LSIE*), synthesized research on science learning across settings and learner groups, distilling six intertwined "strands" of science proficiency necessary for science learners in all life stages (*LSIE*, 2009). These strands "encompass the knowledge, skills, attitudes, and habits of mind demonstrated by learners who are fully proficient in science" and at the same time "represent important outcomes of science learning" (*Surrounded by Science*, 2010, p. 31). Key proficiencies targeted by the *Mary and Her Monster* project include developing an interest in science sparked by excitement and finding meaning in the subject (Strand 1); "reflecting on science as a way of knowing" (Strand 4); and "thinking about oneself as a science learner and developing an identity as someone who knows about, uses, and sometimes contributes to science" (Strand 6) (*LSIE*, 2009).

Audience

The Bakken Learning Framework identifies three key audience groups for its exhibits and programming: *Curious Children and Youth, Learning Families,* and *Engaged Adults.* (See supplementary documents for the *Learning Framework*). *Mary and Her Monster* will prioritize *Curious Children and Youth*, with a particular focus on appealing to teens and pre-teens. Mindful as well of The Bakken's relatively small size and divergent audience groups, the exhibition will use a conceptually-rich and layered design to engage the broader range of ages and interests represented by all our audience groups.

Curious Children and Youth includes the 10,000 students, ages 6-18, who participate in the museum's popular exhibit tours, science workshops, and the *Mary Shelley* Science Theater program. The ethnic composition of student groups visiting The Bakken is 65% European American, 16% African American, 10% Asian American, 8% Latino and 1% Native American. The majority of these students are urban 4th graders (ages 9-10) who study electricity and magnetism. Another large segment is comprised of middle- and high-school students, an increasingly important group for The Bakken. *Mary and Her Monster* will provide a platform to increase our appeal and expand our offerings to them.

Representing 30,000 visits annually, *Learning Families* from the Twin Cities metro area come from one of the fastest growing regions in the Midwest. The metro area is also increasingly diverse: people of color now comprise 24 percent of the region's population compared to 10 percent in 1990 (Metropolitan Council, 2011). The exhibition will create a family-friendly introduction to the Frankenstein story, where families with children and teens can model the kinds of conversations about science that Mary Shelley had with her friends and family.

A third audience group, *Engaged Adults* (ages 19-60+), typically represents an audience with greater background knowledge in science and the humanities. In addition to the appeal of a new exhibition that expands on the popular *Frankenstein's Laboratory*, the Museum anticipates heightened interest due to the familiarity of Mary Shelley's literary work.

Results: Exhibition Description

The gallery in which *Mary and Her Monster* will be installed is an intimate space. The design will take advantage of this scale by creating an interactive, immersive environment that evokes an early 19th-century parlor—the kind of space where Mary would have shared ideas with her family and friends about literature and science, debated religion and current affairs, or traded stories, as they did on the evening when 18-year-old Mary first sketched out the tale that would become *Frankenstein*. Historical books and artifacts from The Bakken's collections will be paired with replica period furniture intended for visitor use, while multimedia interactive elements, integrated into the theater-set-like design, will introduce the young author and her friends, and provide deeper content (see supplementary documents for museum map and design concept drawings).

The exhibition will create a meaningful personal connection to Mary Shelley through first-person stories and exhibit elements inviting visitors to explore the nooks and crannies of her room. As visitors get to know Mary's "world," they will also get to know Mary. Through the display of historical scientific instruments and replicas for hands-on use, the exhibition will include science-based elements as well as historical and literature-based content. Excerpts from Mary Shelley's journals and letters will provide a first-person voice to establish empathy and identification with Mary. Components will be designed to address multiple outcomes, and layered content will provide additional material for those who wish to explore topics and ideas more deeply. These techniques will allow for a conceptually-rich exhibition within a relatively small space.

Themes and possible experiences include:

- *Meet Mary and Friends:* Mary's family was known for its radical politics and Mary had a number of fascinating companions including her husband, the poet Percy Shelley. Possible elements include a timeline overview of the life of this remarkable teenager and a "cast of characters" that introduces the many famous and influential figures in Mary's life. A video-based component will allow visitors to eavesdrop on Mary and her companions in the next room as they discuss philosophy and science. Visitors may contribute an entry to Mary's diary.
- *Cutting-Edge Knowledge:* In Mary's day, the latest electrical discoveries quickly reached the public through spectacular demonstrations designed to amaze and educate audiences. Scientists conducted gruesome experiments to uncover the role of electricity in animating life, experiments that inspired Mary and fueled her nightmares. Present-day visitors will be drawn into this world of electrical science and entertainment through a rich display of historical images, rare books, scientific instruments, and demonstration devices used by researchers, lecturers, and "parlor investigators" in the late 18th/early 19th centuries. Replica devices will allow visitors to try period experiments for themselves.
- *A Cautionary Tale:* Mary's novel questioned the Romantic idea that knowledge should be pursued at any cost, and proposed that scientists have ethical obligations to society and to their creations. Visitors will be asked to consider what Mary might have thought of 21st-century experiments and medical technologies aimed at replacing organs with man-made devices, recreating life, or cloning living beings. A possible interactive element would allow visitors to ask Mary her views on these developments and provide their own.
- *The Monster Lives!:* Since Mary birthed her creature and helped create a literary genre—science fiction—many other versions of Frankenstein's monster have been brought to life. Film clips and images of these monsters and other sci-fi creations will remind visitors of the impact of Mary's work.
- *Modern-day Marys:* Meet present-day writers, scientists, and artists who embody the spirit of Mary by working across disciplines and using science in creative ways. Projection techniques will allow visitors to step into the shoes of these inspired and inspiring women, and to imagine themselves as the next "Mary."

Advancing the Mission and Strategic Goals

> "The Bakken inspires a passion for science and its potential for social good by helping people explore the history and nature of electricity and magnetism." —The Bakken Mission

The *Mary and Her Monster* exhibition project is strongly aligned with The Bakken's mission and its strategic goals. In 2008-2009, The Bakken's board and staff engaged in a round of organizational planning that aligned its strategic and learning interests with an emerging national consensus about the need for improved science education and a

prepared, active, and engaged citizenry for the 21st century. This effort resulted in a new mission statement that marked a significant shift in the Museum's sense of purpose, extending beyond simply building knowledge to fundamentally changing individual and community perspectives on science, and from only delivering content to inspiring passion and connections with science. The planning process established four strategic directions: extending community engagement; leveraging the Museum's strategic assets; consolidating its humanistic approach to science; and diversifying its resources.

In 2009, following organizational planning, exhibits and program staff worked with Vergeront Museum Planning (Minneapolis, MN) to develop *The Bakken Learning Framework,* focused on enhancing and delivering learning value across all of the Museum's learning resources: exhibits, programs, collection, and the house and grounds. The *Learning Framework* prioritized engagement strategies for audience groups; defined a learning approach to science as a creative, social endeavor; and identified areas of impact relevant to both informal learning settings and The Bakken's mission. The planning team applied the *Learning Framework* to develop an *Exhibit Master Plan* to refresh and replace 3,200 sq. ft. of exhibits installed during a 1999 expansion (see supplementary documents for the *Learning Framework* and *Exhibit Master Plan*).

Adopted by the Board in December 2009, the *Exhibit Master Plan* responds to the needs of The Bakken's school and general admission audiences for updated exhibits that challenge visitors to consider the relevance of the science and history of the past to 21st-century concerns. The *Plan* proposes six exhibitions, including *Mary and Her Monster*, which introduce new topics and reframe existing ones, using an approach reflecting The Bakken's rich and layered mission. Development and installation of *Mary and Her Monster* will be a key step in fulfilling the *Exhibit Master Plan*.

2. Project Work Plan

Tasks and Schedule

The development, design, fabrication, installation, and evaluation of *Mary and Her Monster* will take place over two and a half years, beginning in December 2014. The schedule has been organized around an October 2016 exhibition opening date, which coincides with the time of heightened interest in the Frankenstein story at The Bakken and allows for an installation schedule that accommodates the needs of our school programs.

Using the logic model developed during front-end evaluation as a guide, preliminary and detailed development, design, and formative evaluation are planned for the first project year and into the beginning of the second. Six months have been scheduled for detailed development and design, which will allow sufficient time for review by stakeholders and the incorporation of feedback from this process. Fabrication and media production will begin in the second year and will overlap somewhat with detailed development to ensure sufficient time for these phases. After the opening in October 2016, remediation will take place as needed. Summative evaluation and the consolidation of evaluation resources for future use will occur in the first half of the third project year, with completion planned for the end of April 2017.

Project Staff and Consultants

Dr. Juliet Burba, Chief Curator, will oversee all phases of the project and act as lead developer. She holds a Ph.D. in the history of science and technology and has more than a decade of experience developing exhibits for large and small museums. Kelly Finnerty, with extensive experience in leadership positions as director of education at the Minnesota Children's Museum and as Deputy Director for Programs at The Bakken, will provide strategic and budget oversight. Additional exhibit development and curatorial tasks will be conducted by the assistant curator, Adrian Fischer, and exhibit developer, Tristan Poehlmann.

The Bakken staff team will be aided by a highly-experienced group of consultants and advisors. Chris Krumm of TropoStudio (St. Paul, MN) has fifteen years' experience working with the Science Museum of Minnesota and independently on design, development, fabrication, and project management for major exhibition projects. He will manage overall production, design, and fabrication, assisted by Jesse Heinzen of Progressive Frame Media (St. Paul, MN) and the Minnesota Historical Society, who will handle production of multimedia components. Cheryl Kessler (Blue Scarf Consulting, Minneapolis, MN) will lead the evaluation process. She has over a decade of experience

conducting all phases of exhibit and program evaluation in children's museums, science centers, natural history museums, zoos, living history sites, and libraries.

Four experienced advisors will participate in early planning meetings and review plans: Joanne Toft is an elementary school teacher with the Minneapolis Public School District who teaches literacy and science; Daniel Spock is director of the Minnesota History Center and has extensive experience designing and developing history exhibitions; Kathy Glover is an exhibit developer with over 20 years' experience at the Science Museum of Minnesota; and Dr. Amy Fisher is a historian specializing in late-18th and early-19th-century electrical science and an assistant professor in the Science, Technology and Society program at the University of Puget Sound.

Institutional Resources

This project provides The Bakken with multiple opportunities to leverage its strategic assets, including its collections and popular related programs and exhibits.

Programming: *Mary and Her Monster* will occupy a space adjacent to one of the Museum's most popular exhibits, *Frankenstein's Laboratory*, an object theater that uses an atmospheric set with historical objects and a script drawn from the original novel to retell the Frankenstein story. *Mary and Her Monster* will foreshadow and provide important context for this existing exhibit, identified as highly successful in the master-planning process. The project also builds on a Science Theater program on Mary Shelley and an online exhibit about Frankenstein. To create the *Laboratory*, Science Theater program, and online exhibit, Bakken staff conducted significant research that will be useful in developing *Mary and Her Monster*. Visitor perspectives gathered both formally and informally on these projects also offer valuable insights for project planning.

Through its long-running and successful school partnerships and programs, The Bakken has a well-established school field trip program, which includes educator-led exhibit tours. Two dedicated classrooms provide space for workshops held in conjunction with exhibit tours during these visits. Groups may also experience The Bakken's Science Theater performances in the Great Hall of the historic house. These tours, workshops, and performances provide a base of programming that will be modified and expanded to integrate content and themes related to *Mary and Her Monster*. The object theater, exhibit tours, classrooms, and Great Hall performance space also allow the Museum to accommodate larger classes and multiple groups within its relatively small exhibit spaces.

Collections: The Bakken holds one of the finest collections in the world of electricity- and magnetism-related historical books, scientific instruments, and medical devices, including an extensive collection of 18th- and 19th-century resources relevant to the exhibition. The book- and object-rich environment, in-depth interpretation, and appealing context of *Mary and Her Monster* will connect visitors to the Museum's historical collections. The Bakken's artifact collection includes a number of 18th- and 19th-century devices relevant for display in *Mary and Her Monster*. Examples include electroscopes, voltaic piles, electrostatic generators, galvanometers, and demonstration devices such as an electric egg or a scintillation sphere. Relevant works in the library collection include early editions of *Frankenstein*: the 1818 (first), 1831, and 1833 editions; as well as several 20th-century versions, including the 1984 Pennyroyal edition with engravings by Barry Moser. Other works document Mary Shelley's intellectual and cultural milieu, such as early 19th-century volumes by Luigi Galvani and Giovanni Aldini, a copy of Lord Byron's *Don Juan*, and the works of Paracelsus (referred to in the text of *Frankenstein*).

Facilities: *Mary and Her Monster* will be installed on the first floor of The Bakken's atmospheric Tudor mansion, renovated and expanded to house exhibition space, classrooms, staff offices, collections storage and processing facilities, and two workshops that can accommodate light fabrication. (See supplementary documents for museum map.) Major fabrication will occur at TropoStudio (St. Paul, MN).

Budget: The total cost of the project is $308,985. The Bakken requests $150,000 from IMLS, representing 49% of the total project cost. The Bakken will provide matching funds of $158,985 from unrestricted funds and/or restricted funds. The Bakken receives 78% of its funding from contributions of which 85% is unrestricted. The 2014 budget already has over $1.175 million committed in pledges, representing long-term funder commitments. Additionally, restricted funds of $77,000 have already been secured for 2014 costs. The distribution of the match for this project has been confirmed based on secured, unrestricted funding.

Tracking Progress

In 2010, The Bakken refined, systematized, and recorded its exhibit planning process to establish a clear set of roles, tasks, and review points for exhibit messages, content, design, and budget. This shared understanding of all steps in the process will be valuable for managing a project involving an external production manager and fabricator, exhibit and media designers, an evaluator, advisors, and internal team members. The Bakken will utilize formative and summative evaluation, providing insights and information to developers, designers, and writers. Formative evaluation will explore how visitors use exhibit components and understand concepts to refine exhibit design and development, while summative evaluation will assess the impact of the project and provide valuable information for future Bakken exhibition projects. A formal process with designated review points and evaluation will allow changes, corrections, and improvements to be incorporated in a timely way.

Dissemination

Mary and Her Monster will be shared with 40,000 visitors annually over 10-12 years, potentially reaching up to 500,000 visitors over the life of the exhibition. The opening will be publicized in press releases and ads in local media. The Bakken website will be updated to promote the new exhibition and related programs, and to represent an expanded focus on Mary Shelley. A promotional banner, the website, and all marketing materials will acknowledge IMLS project support. In addition, we expect renewed interest in public lectures related to exhibit topics by The Bakken's curator Dr. Juliet Burba and executive director Dr. David Rhees. Dr. Rhees has a history of lecturing locally, nationally, and internationally on the science of *Frankenstein*. We will share our experience developing a cross-disciplinary exhibition and disseminate evaluation results at regional and national conferences held by the Association of Midwest Museums, American Alliance of Museums, the Association of Science and Technology Centers, and the History of Science Society, meetings at which Bakken staff routinely present.

3. Project Results

Impact of the Exhibition

Building on content knowledge, experience with visitors and existing related programming, The Bakken's *Learning Framework*, and national learning needs assessments as outlined in section 1, Bakken staff have identified three areas of visitor impact for *Mary and Her Monster*. (See supplementary documents for full logic model.)

1. "Science Identity: Mary Shelley and You" is aimed at increasing knowledge about Mary Shelley, her personal life, and her historical context. Focus group discussions with both students and teachers suggest that for children and youth, familiarity with Mary's unique story is a stepping stone to identifying with her as a role model, for expanding ideas about who can engage with science and how it can be done, and, ultimately, for inspiring visitors to find their own way to participate in science.

2. "Ethical Issues" focuses on a feature of *Frankenstein* that makes it timeless—questions of ethics that are as relevant in the 21st century as they were in 1818, both within the context of the novel and as they recur today. This will include asking visitors to reflect on the treatment of the monster by its maker and community, and to consider their own views on the extent of scientists' responsibility for the effects of their work.

3. "Science/Culture" centers on developing an understanding of science as a way of knowing that is affected by its broader historical and social context, and that, in turn, helps to shape culture and society. Front-end evaluation indicated visitors' strong interest in the early 19th-century science that inspired Mary Shelley. As they discover how and why the practice of science was different in Mary's day, adult and youth visitors will see contrasts and similarities with the practice of science today. As they connect pop-culture monsters with Mary's creation, visitors will discover the interplay between imagination, art, and culture.

Measuring Results

Summative evaluation will focus on understanding how and to what extent visitors see themselves engaging in science whatever their entry point or interest may be. Summative evaluation methods may include: embedded evaluation activities scored on a rubric developed from intended outcomes for the *Curious Children and Youth* audience (n=75-100); matched observations and interviews with the *Learning Families* audience (n=50-70) to record

engagement and interaction and how knowledge gained in the exhibition may be extended in their everyday lives; and embedded evaluation, such as questions for a book group or a reflective journal for the *Engaged Adults* audience (n=40-50).

Cheryl Kessler of Blue Scarf Consulting will design an evaluation process intended to yield results with relevance for future exhibits and programs. *Mary and Her Monster* will draw explicitly from The Bakken's *Learning Framework,* and it intentionally hones the humanities-based approach that has implicitly characterized Bakken offerings for many years. Evaluation findings will strengthen the Museum's ability to effectively deliver this approach. A thorough understanding of its unique means for engaging audiences will aid The Bakken as it seeks to compete and collaborate with other Twin Cities science and history museums (see supplementary documents for evaluation plan).

Advancing the Field

Questions of interpretive strategies, collection use, multimedia integration, and the effectiveness of cross-disciplinary informal learning experiences will be addressed through evaluation of *Mary and Her Monster*, and will have broader implications for future humanities-based science exhibits at The Bakken and beyond. Similarly, testing for effective ways to foster a personal connection with a historical character, to engage visitors in considering the relationship between science and art, and to highlight social issues posed by science has significance beyond this exhibition. Recent conversations with colleagues in the field about cross-disciplinary museum experiences have underscored the growing interest in exhibits that bring together science, humanities, and the arts, while requests for evaluation results on the integration of history and science in informal learning have highlighted the lack of systematic research in this area. Over the course of the project, staff will work with Cheryl Kessler to explore these questions, and we will share results as outlined in section 2 under "Dissemination."

Sustaining Results

Mary and Her Monster will be a long-term addition to The Bakken's 3200 sq. ft. of exhibition space. The exhibition will serve an on-going school program that draws over 10,000 students yearly who receive guided tours, as well as the Museum's over 30,000 yearly general admission visitors. *Mary and Her Monster* will offer a richer experience for students by providing additional exhibit content and context for the popular *Frankenstein's Laboratory*. With its close connection to the object theater, it will effectively create an 850-sq.-ft. exhibition. *Mary and Her Monster* will connect with existing Bakken programming through our Science Theater and Science Saturday programs.

The exhibition will also serve as a platform for developing new local and national programming partnerships. In 2014, for example, we will pilot a "Science on Screen" series with the The Film Society of Minneapolis and St. Paul featuring a screening of the 1935 film *Bride of Frankenstein*, starring Boris Karloff and Elsa Lanchester. This classic film begins with a scene reenacting Mary Shelley writing her "tale of horror." Frankenstein is a theme that resonates with current scientific debates, ranging from genetically-engineered crops and "Frankenfoods," to stem cell research, to the work of the University of Minnesota's Visible Heart Laboratory. Local experts are available in all these disciplines and will be tapped to provide programming support. Other local partnership possibilities we have started to explore include joint programming for adults and youth with the Minnesota Center for the Book Arts. Nationally, Arizona State University (ASU) has invited us to participate in planning for the 2018 Frankenstein Bicentennial Project, a project of ASU's Consortium for Science, Policy and Outcomes and its Center for Science and the Imagination.

Mary and Her Monster

Project Timeline

	Project Year One												Year Two												Year Three			
	'14	2015											2016												2017			
Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Additional research; refine conceptual development and design																													
Preliminary interpretive planning and design Component list Develop design plan																													
Design formative evaluation																													
Prototype select exhibit elements																													
Conduct formative evaluation																													
Refine logic model																													
Refine interpretive plan based on evaluation results																													
Detailed development and design Final component list Scripts Final design Production plans																													
Exhibit fabrication and media production																													
Exhibit installation																													
Opening-Oct. 2016*																													
Exhibit remediation																													
Summative eval. data collection																													
Analyze eval. data and write final report																													
Compile evaluation tools for future use																													

* The opening date was selected based on a number of factors: attendance patterns, need to accommodate school groups, availability of work space, and the schedule of special events programming.