

Neuse Regional Library

Accelerating Promising Practices for Small Libraries

Project Narrative

Project Justification

The primary objective of Gateways to STEM is to provide increased access to STEM (Science, Technology, Engineering, and Math) programming to all young children in the areas served by the Pink Hill Public Library, a member of the Neuse Regional Library System. The project will also assist the Library in expanding its current STEM 4 All program, which serves children in public housing in the City of Kinston.

The Pink Hill Public Library and the Neuse Regional Library System serve some of the most rural areas of North Carolina. Lenoir County's percentage of residents with a high school diploma is 80.1%, significantly lower than the state average of 86.9%, and the percentage of residents with a bachelor's degree or higher is 13.5% vs. 29.9% for the state. The median household income is \$37,515 vs. \$50,320 for the state of North Carolina, and percentage of residents in poverty is 24.7% vs. 14.0% for the state, and the crime index is twice the national average.

These communities have also faced the unique challenge of experiencing two one-hundred-year flood events in the span of two years, after hurricanes Matthew and Florence. The area is also in an economic state of transition, as it has a rich agricultural tradition highly dependent on tobacco farming and now faces an urgent need to create new economic development paths.

All of these factors contribute to a strongly pronounced need for increased STEM education in the areas served by these libraries. As the communities rebuild from disaster and attempt to reshape their local economies, it is essential that local children receive as much assistance as possible in ensuring they are prepared for STEM education, which continues to play an increasing role in all levels of schooling and has become a prerequisite for a continuously increasing share of jobs and careers.

The library is uniquely positioned to assist with this type of education, thanks to the universal access it offers the community to its services. The Pink Hill Public Library serves as a community center and is accessible to all, regardless of income. Because the communities served are rural and the populations too small to support very many education-supporting organizations, local students do not have alternative places they can go to gain experience with STEM activities and subjects. The Library is in the position to offer free programming after school and during summers packaged in a fun, inviting atmosphere.

The Library has made STEM education a major component of its current strategic plan. Local school systems are increasingly promoting and encouraging education within STEM fields to ensure that local children are prepared for the future. As an organization that serves as a gatekeeper to high-quality information and one of the intellectual and educational cornerstones of our community, the Library has made assisting with these endeavors a priority.

John Baek of the National Center for Interactive Learning describes how Libraries can play a major role in promoting STEM education:

Libraries that reinterpret their traditional mission of providing resources for self-directed learning that meet the above criteria are going to be seen as STEM learning centers that foster literacy of its patrons. In one sense STEM experiences are no different than what the library has always done, which is to provide learning opportunities that help them fuel new interests, support career development, and engage in lifelong learning. Libraries are an important institution that serves the learning needs of its community. STEM is an important lifelong endeavor and [...] libraries are uniquely positioned to support lifelong learning of STEM for members of their community.¹

Towards these ends, the Library has already begun a major STEM initiative in Kinston, the town where its Headquarters Library is located. Funded by a Library Services and Technology Act grant from IMLS administered by the State Library of North Carolina, the Library is currently in the first year of a pilot program called STEM 4 All, an initiative to bring STEM programming directly to students at local public housing facilities. The Library hopes to expand on its experiences offering this programming as well as the partnerships it has created with the Kinston Housing Authority and Lenoir County Public Schools by offering increased STEM programming at some of its other smaller, more rural libraries.

The expansion of the libraries current STEM education activities to Pink Hill will perfectly complement the current STEM 4 All activities. The existing STEM 4 All program targets students in housing who might not otherwise have access to the library's STEM resources; the Pink Hill Public Library, which has been very effective in serving as a community center for the surrounding rural areas, will similarly increase access for the students who rely on the Library as a gateway to educational resources. The common theme throughout the program is to remove barriers to access to students throughout the Library's region.

This project directly addresses the Digital Inclusion category of the Accelerating Promising Practices for Small Libraries grant program by creating inclusive educational opportunities that address specific audience needs related to digital literacy. As demonstrated above, the Library has identified an increased need for STEM programming among the youth of these communities, and will use this project as a way to deliver increased opportunities for STEM education directly to them.

The facility this project will focus on are small libraries by any definition. The Pink Hill Public Library only has one full-time staff member and depends heavily on regional support from the Neuse Regional Library System. The community served by the Library is also small. The populations of Pink Hill is only 518; when the rural communities surrounding it are factored in, the service population of the Library is approximately a few thousand people.

¹ Baek, J.Y. (2013). Public libraries as places for STEM learning: An exploratory interview study with eight librarians. Boulder, CO: National Center for Interactive Learning at the Space Science Institute. Retrieved from https://www.lpi.usra.edu/education/stemlibraryconference/events/Baek_Public_Libraries_STEM_Learning.pdf

Grade school children in the service areas of these libraries are the direct beneficiaries of this project. The Library recently completed a strategic planning process that included a community survey and a careful examination of both current services and pronounced needs in the community that could be better served by the Library and its programming. As part of this process, the Library identified STEM programming as a major area where it could make a substantial positive contribution in the community.

This project supports the goals of the Accelerating Promising Practices for Small Libraries program by strengthening the ability of these small, rural libraries to serve their communities by offering the programming young patrons need. The program will promote lifelong learning by supporting early and digital literacy education and provide continuous learning for children with diverse background and needs. It will also build capacity by increasing service as trusted spaces for community engagement and dialogue, and increase public access to the library's collections and services.

Project Work Plan

The Neuse Regional Library will hire a STEM Outreach Coordinator to plan, design, and implement STEM programming at its location in Pink Hill for first through fourth graders, while creating inviting and functional spaces that can be used for interactive STEM programming. This position will also assist existing staff with creating a cohesive STEM programming plan that will include the Library's existing STEM 4 All pilot program at housing facilities in the City of Kinston, and will empower that program to expand to a second location.

This programming will be held after school and during summer breaks and will include a major reading component which will be designed to combat the "summer slide," or deterioration in literacy skills, that has been measured in children during extended time away from school such as summer vacations. Through the resources provided by this grant, staff will have the tools available to provide high quality programming. Computers, educational software, science supplies and STEM kits, and tablets that can be used for hands-on STEM activities at each library will be made available to students who may not otherwise have access to these resources.

The centerpiece of programming will be a STEM-based summer reading program specifically designed to counteract the summer slide. These sessions will be based around STEM titles such as *Ada Twist, Scientist*, *What Color Is My World?*, and *The Boy Who Harnessed the Wind*. Activities will include group reads, discussions of the books in the context of STEM topics, time with software designed to improve literacy, and related STEM activities and group projects that will reinforce the ideas presented in the books. The programs will be designed to have multiple objectives: to increase the level of literacy in each participant while also increasing their exposure to, interest in, and knowledge of STEM.

The project will support hiring an individual to fill the new part-time position of STEM Outreach Coordinator whose chief responsibilities will be to design and implement STEM programming at these locations. Offering high-quality STEM programming presents unique challenges, and the success of this program is contingent upon having a staff member available with the expertise necessary for presenting successful STEM services and programming. The Library will seek an

individual with a strong background in STEM education and early education to ensure that it achieves measurable results from the program.

The project will also allow the Library to equip these libraries with spaces that can satisfactorily host the new STEM programming. These libraries currently do not have designated spaces where this programming can be offered to participants. The Library will upgrade furniture and install new computers to ensure that when children attend these programs they receive a welcoming experience that will encourage repeated visits. By equipping these libraries with these designated areas for STEM programming, the Library will convey the message to participants that they have a space at the Library where they belong and can feel comfortable and open to learning.

The Library will also obtain the materials necessary to conduct the actual programming. This includes tablets and interactive educational tools such as Osmos that allow students to participate in hands-on activities using the tablets that involve coding, art, science projects, brain teasers, and more. The Library will obtain IXL literacy software that will be the main component of actively increasing students' literacy. This software tracks student progress and helps program leaders ensure that students are benefitting from literacy programming. The Library will obtain traditional science supplies like microscopes as well as STEM kits to ensure that the program leader has the material necessary to lead interactive demonstrations.

Finally, the Library will use some of the funding made available through this project to obtain virtual reality equipment. This increasingly popular technology can be used to offer immersive, 3D workspaces where students can create their own 3D models and designs which in turn can be manufactured on the Library's 3D printers. Virtual reality software also offers opportunities to explore geographical, ecological and cultural digital spaces and helps expand the horizons of the young participants.

One of the major objectives of this programming will be to increase exposure in participants to these types of technology. In addition to virtual reality and 3D modeling and printing, the Library will also ensure that students have access to resources for learning more about coding, computer networking, hardware, and other important topics relevant to growing fields of study and job markets. The students in the service areas of these libraries are at risk for limited exposure for these types of technologies, and the Library is committed to ensuring that they have access to all types of technology so that they are equipped to have a full range of choices for future education and career paths.

The project will consist of the following major actions:

- Hiring of a STEM Outreach Coordinator
- Equipping of the Pink Hill Public Library with the necessary equipment and furniture for STEM programming
- Development of new STEM programming by STEM Outreach Coordinator in partnership with other library staff and acquisition of necessary equipment and supplies for programming
- Expansion of existing STEM 4 All pilot program to an additional location

-Marketing and presentation of new STEM programming

-Evaluation of effectiveness of programming and assessment of participant progress

Partnerships will play a major role in the project. The Library already has established relationships with the Kinston Housing Authority and Lenoir County Schools for projects such as STEM 4 All in Kinston and the Library's StudentAccess program, where students are given access to the Library's materials and online services using their student ID number. The Library will use these existing relationships to expand the partnerships to ensure that the impact of the Library's STEM programming is maximized and so that each organization can complement areas the other has identified as an area for potential improvement. The library will also identify community organizations who can partner with the program, in the form of visiting as guest speakers, assisting with marketing of the programs, or other collaborative efforts.

Neuse Regional Library is also committed to participating in the community of practice for this project. STEM programming is an emerging field of librarianship that is becoming increasingly popular as demand for it increases from the community. The Library understands the value in sharing its own experience and contributing to the development of best practices among all libraries in conducting this type of programming. The STEM Outreach Coordinator, as the primary developer of STEM programming at these locations, will be the primary participant in the community of practice, but the Library is willing to have other staff members participate in this community as necessary.

The project will be implemented by the following Neuse Regional Library staff members:

- Melanie Morgan, Director of Libraries – Project management
- STEM Outreach Coordinator – To be hired – Program development
- Sharon Mervin, STEM 4 All coordinator – Program support
- Chanda Platania, Teen and STEM Librarian – Program support
- Amber Hargett, Head of Children's Services – Program support
- Sheree Casias – Pink Hill Branch Head

The Library recognizes the time, financial, and personnel demands of both the project and participating in the community of practice. As such, it is creating a new part-time position through the project to ensure that these demands are sufficiently met to ensure successful outcomes. The Library will also use its existing infrastructure (personnel, best practices, marketing resources) to support the project.

The Library will measure progress through software obtained through the project designed to continuously measure progress in early literacy. The Library will regularly evaluate the effectiveness of programs and make adjustments as necessary to ensure the best results possible. More comprehensive evaluation procedures will be performed yearly as described below under Project Outcomes.

Project Outcomes

The Library has identified the following target outcomes for this project:

- Increased engagement with STEM education by students who participate in Library programming
- Better preparation of students for future educational or career success
- Increased interest in reading and participation in STEM activities from participating students
- Increased reading levels in program participants

These objectives directly address the need stated above for increased STEM programming with the goal of ensuring that children in the target communities are equipped for future educational and occupational opportunities. Success for this project will be demonstrated by successful STEM programming and measured impact on participants in the above areas.

The Library will document the total number of programming sessions supported by this project and the number of children served. The Library will administer pre- and post-assessments of students who participate in summer reading programming to measure growth during the course of the program.

The Library will also heavily rely on surveys and interviews with participants and their parents to determine the success of these outcomes. The Library will request self-reporting from students and parents on how the program has affected their school performance, and will also ask questions designed to examine whether the project has succeeded in creating more positive attitudes in students towards reading, STEM activities, and general learning and literacy. The Library will also retain contact information for conducting follow-up interviews six months to a year after the completion of the program to determine whether the program had a lasting impact on participants.

The Library will use existing tools to ensure a high quality of evaluation procedures. The Library has begun using Project Outcome, a toolkit developed by the Public Library Association designed to help public libraries understand and share the impact of essential library services and programs by providing professionally developed surveys and a framework for measuring and analyzing outcomes. Digital Learning, Early Childhood Literacy, and Summer Reading are three of the seven library service areas covered by Project Outcome, so the Library will fully use this resource to ensure that its evaluation activities are thorough and effective in measuring the realization of desired outcomes.

Sustainability will be a major focus during the project period, as the Library hopes to use the pilot program developed through this project to demonstrate the need for these services to community leaders for continued funding. The Library is currently pursuing a similar strategy in Lenoir County, where its Headquarters is based, for its housing-based STEM 4 All project. Gateways to STEM will allow the Library to increase the scope of its efforts to convince local funders of the importance of STEM education in libraries to Lenoir County and the Town of Pink Hill. By introducing the program and displaying to stakeholders how beneficial the program is to participants, the Library intends to create the perception in the community that the program is not just an asset, but a necessity.

Schedule of Completion

Activities	September 2020-August 2021	September 2021-August 2022
Hiring of Digital Outreach Coordinator	■	
Equipping of libraries with equipment/furniture	■	
Development of new STEM programming	■	
Marketing of new STEM programming	■	■
Establishment of partnerships to support programs	■	
Afterschool programming	■	■
Summer programming	■	■
Evaluation of effectiveness of programming	■	■
Expansion of existing STEM 4 All program to new location	■	■
Yearly survey of students/parents	■	■
Establishment of funding commitment from local sources		■