



Inspire! Grants for Small Museums

Sample Application IGSM-245333-OMS-20
Project Category: Lifelong Learning

Key West Tropical Forest and Botanical Garden

Amount awarded by IMLS:	\$49,829
Amount of cost share:	\$68,750

The project description can be viewed in the IMLS Awarded Grants Search:
<https://www.imls.gov/grants/awarded/igsm-245333-oms-20>

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of Completion

Please note that the instructions for preparing applications for the FY2021 Inspire! Grants for Small Museums grant program differ from those that guided the preparation of FY2020 applications. Be sure to use the instructions in the Notice of Funding Opportunity for the grant program and project category to which you are applying.

The Growing Living Laboratory
At the Key West Tropical Forest & Botanical Garden

The Key West Botanical Garden Society, Inc. (KWBGS) **proposes to:**

- Expand the numbers of grade levels and total number of students served by our hands-on outdoor environmental education program, increasing our total number of students served by 500 students annually.
- Increase inclusive programming for at risk students, particularly those who are economically disadvantaged.
- Expand the curriculum continuity into Middle and High School by facilitating guided research projects for students participating in the district STEM Fair.
- Facilitate student-created multimedia activity tutorials that will serve as an evaluation of students' understanding of the material. These materials will be edited and posted online to be used as standard-aligned multimedia activities available for free to teachers, students, and the public.

1.) PROJECT JUSTIFICATION

What need, problem, or challenge will your project address, and how was it identified?

The past two years have been spent planning and piloting a new variation of the Living Lab. This revamped program accomplished a 94% increase in student participation from the 2017-2018 school year to the 2018-2019 school year in curriculum-aligned field trips at the Garden. By continuing to expand our field trip curriculum to serve all grades from pre-school through 6th grade, and increase programs for middle and high school students including guided research projects and service learning days, our students will benefit by participating in a continuous program targeting scientific standards throughout their educational career. By adjusting our program to include at risk students (particularly those who are economically disadvantaged), they establish a sense of place in our community and ecosystem, while increasing their confidence and knowledge of the State Standard Curriculum.

In light of our curriculum expansion, we asked local teachers, "How is continuity across grades important to a school's curriculum?" Some answers we received include, "Teaching environmental education from an early age helps set the stage for scientific understanding throughout life. It also ensures that students master standards that are not taught again." "Some standards are taught in younger grades (framework) and not seen again until testing in later grades." "It is important to have the lower grades be taught the basic foundation standards so they are familiar with it in the upper grades." All agreed that educational field trips to the KWBGS provide teachers a way to reinforce environmental education standards throughout the students' years that is more engaging than a typical classroom setting.

We also asked, "If the information detailing additional programs was available online (video instruction, resources, printable lesson plans and materials, etc.), would you use it in your classroom?" Educators responded, "Yes! It would be easily accessible to discuss and review, and to use in the classroom." "Yes, especially if it allowed us to do more than one program, and hit more standards and activities." Through posting lesson plans and activity tutorials online we can broaden our reach to students who may not have the ability to travel to the Garden, or provide extra reinforcement between field trips, bringing the garden into their classroom and expanding our continuity.

We use the term "at-risk" to describe children experiencing family financial need and /or dislocation. School demographics (per NCLB-SPAR report, Florida Department of Education) showed 62% of Horace O'Bryant students and 61% at Gerald Adams (the elementary and middle schools closest to the Garden) as economically disadvantaged, using the measurement of students eligible for free or reduced lunch as a guide. Boys & Girls Club is a non-profit whose mission is to provide a safe place for kids to grow and succeed. In our local chapter of The Boys & Girls Club, 72% are below the poverty line and at-risk of falling behind academically (bgckey.org). We have been working to build our relationship with the Boys and Girls club, and have expanded our collaboration with them in the past year.

Who or what will benefit from your project?

All students participating in these programs (Preschool through High School) will benefit. Experiential

learning fosters self-discovery, and our teaching strategies and learning activities will stimulate higher-order thinking. The Living Laboratory will reinforce and strengthen classroom and field trip teaching strategies and methods, meeting the learner's need to be more successful in end-of-course exams and encourage him/her to be a full participant in the local community throughout their educational career.

How will your project advance your institution's strategic plan?

The project has institutional impact by specifically and measurably advancing the Garden's Strategic Goal for Education: "By 2019 the Garden will have....programs in the Living Laboratory that teach in-school and field lessons to Kindergarten through 6th grade." And, "By 2020, the Garden will create programs, clubs and Service Learning Days directed toward continued youth environmental education for Middle and High School students, and have a pre-school program in "seedling science" for Fresh Start and local community projects."

How will your project address the goals of Inspire! Grants for Small Museums (as described above in Section A1) and align with the project category you have chosen?

The project addresses the goals of the Inspire! Grants for Small Museums and aligns with the Lifelong Learning creating and sharing inquiry-based education through hands-on activities differentiated for multiple learning styles. The Living Laboratory provides "environment-based education, [emphasizing] specific critical thinking skills central to "good science"—questioning, investigating, forming hypotheses, interpreting data, analyzing, developing conclusions, and solving problems" (Archie, 2003). The KWBGS is committed to providing these educational opportunities for all local students, removing financial barriers by providing these experiences completely free of cost to schools and nonprofits. The KWBGS also seeks to broaden our reach through electronic dissemination of our curriculum via lesson plans and video tutorials posted to our website, making the resources of the Living Laboratory accessible regardless of location. In providing these services to our local community, and creating a comprehensive curriculum that targets all ages of students, we commit to serving as an ongoing resource for our community.

2) PROJECT WORK PLAN

What specific activities, including evaluation, will you carry out?

We will follow established guidelines to contact teachers and recruit participants, updating our list yearly. Our goal for the implementation of this project is to have four classes per target grade per semester engaged in the Living Laboratory, a total of 4,000 students served in 2020 (up from 3,500 the previous year) and 4,500 students in 2021.

In order to better serve the Monroe County School District, the Botanical Garden is committed to ensuring that no child or school will be excluded from our programs due to an inability to pay. As such, all school field trips, and field trips for non-profit organizations such as the Boys & Girls Club, are provided free of charge. In-kind transportation is provided by the Monroe County School District, and third-party transportation is provided for those groups not eligible for district bussing.

The STEM Fair teen mentoring project and Garden Companion program will be advertised through established communication channels, including flyers posted on the school district's webpage. Students interested in STEM Fair research will be invited to a short workshop at the Garden to finalize their project theme with the support of Garden educators and brainstorming sessions with their peers. During subsequent meetings throughout the semester, students will design projects and begin data collection. Students and adult guardians will be granted free access to the Garden during open hours in order to collect data, check-out necessary materials and supplies, and have access to educators who will support and assist students through this phase. Once data is collected, students will meet with educators to learn how to analyze and present their data, to create displays, and to practice communicating their findings. Meetings will be arranged between Garden Education Staff and the student to create a timeline and plan.

Student-created videos will be curated and edited by the education department to create tutorials of the Living Lab program. These materials will be available on the Garden's website, publicized via social media,

and shared regionally with other educational partners in the Florida Youth Conservation Centers Network. These multimedia tutorials will build on the lesson plans that are currently posted, making garden education more accessible to all. By the end of the two- year expansion plan, there will be a tutorial for each of the newly developed topics including material lists and instructions on how to adjust the program for different levels.

What is your project’s maturity level (i.e. exploratory, piloting, scaling, or mainstreaming)?

This project began in 2017 with a revised curriculum, supported by IMLS. This proposal seeks to pilot new content for the Living Laboratory, and begin scaling established curriculum to fit additional grade levels.

What are the risks to the project and how will you mitigate them?

In recent years, the Living Lab program has concentrated on 4th grade students, as this was identified as the grade with the most urgent need for additional science instruction. This may result in teachers from other grades not scheduling field trips as they are not aware that we now offer standard-aligned educational field trips for all grade levels. We will address this risk by sharing a comprehensive list that details each science standard that our new field trips address, specific to grade level, with every teacher within that grade. The school district’s science coordinator will facilitate this process.

A second risk is found in the incorporation of standard-based programming for 6th grade students in a field trip environment. While it is easy to measure how well students in lower elementary grades meet required standards (concrete factual knowledge gains), at the 6th grade level, standards often require students to demonstrate the ability to think creatively about a subject, learn how concepts are related on a deeper level, and negotiate among peers to enhance their knowledge. We account for this risk by creating revised versions of the lab book for 5th and 6th grade students that encourage critical thinking about the concepts and require collaboration with peers.

Who will plan, implement, and manage your project?

Project Manager/Education manager Robin Sarabia and environmental educator Kelcie Hall will plan, implement, and manage the project. Their qualifications are detailed in the attached supplemental material.

Will partners be engaged and, if so, for what purpose?

We will continue our partnership with the Boys & Girls Club, which allows us to create continuity with the same group of at-risk youth over the entire year and build upon each lesson with every visit. All ages of the Boys & Girls Club will participate in our program including summer field trips, professional day trips twice a year, and winter and spring break field trips. The Director of the local Boys & Girls Club praises our new program for its proven ability to engage the economically disadvantaged and reluctant learner children she works with.

If your project involves working with the community, how will they be involved in defining the project’s vision, outcomes, and other aspects of the proposed activities?

Local teachers will be engaged in an open dialogue in order to tailor the program to their students’ unique needs. All lessons are coded with Science (SC) benchmarks to match Florida’s official Next Generation Sunshine State Standards (NGSSS) curriculum.

When and in what sequence will your activities occur?

- **Fall 2020:** Adapt content to 3rd, 5th, and 6th grade, Contact teachers to schedule field trips in the winter.
- Distribute information to middle and high schools about Teen STEM Fair Guided Research program via online flyers. Meet with students to identify areas of interest, create work plans.
- **Winter 2020/21:** Test new content with 3rd and 4th grade field trips. Use multimedia evaluation materials from these field trips to begin to develop online tutorials. Boys and Girls Club will attend winter break field trips.
- Continue STEM Fair Guided Research- Aid students in understanding their data and discuss best practices for display creation and presentation.

- **Spring 2021:** Test new content with 3rd, 5th and 6th grade students and use resulting multimedia evaluation materials to create and publish online tutorials.
- **Summer 2021:** Adapt content for pre-k to 2nd grade and use summer camp field trips to beta test new content. Boys and Girls Club summer camps will be engaged in active scientific learning.
- **Fall 2021:** Test new content for Pre-k to 2nd grade. Edit multimedia evaluation materials to develop and publish corresponding grade level tutorials online.
- Repeat Teen Guided Research plan as scheduled for previous year.
- **Winter 2021-Spring 2022:** Living Lab welcomes field trips of all grades pre-k to 6th.
- **Summer 2022:** Reflect and make final assessments of new content. Test any adjustments during summer camp field trips.
- **Fall 2022:** Solidify new content. Contact teachers grades pre-k to 6th to schedule field trips in the fully expanded Living Lab program. Begin Teen Guided Research program again.

What time, financial, personnel, and other resources will you need to carry out the activities?

Financial, personnel, and other resources needed include grant funding for partial teacher salaries, equipment and materials for two years of a sustainable education program. Other museum/garden personnel will carry out general operational and educational activities that are not part of this proposal. Some student transportation will be provided by Monroe County School District and the Boys & Girls Club and Monroe County School District, and additional transportation is provided at a discounted rate by Historic Tours of America. The significant biological resource of the Key West Tropical Forest & Botanical Garden is the outdoor classroom in which learning takes place. Lessons will be focused on the natural resources found in the Garden: endemic plants, threatened and endangered species, and the habitats that support them. The Garden provides habitat for 550 accessioned plant species in a regionally important collection, including 17 species of native plants classified as critically imperiled or extirpated in South Florida.

How will you track your progress toward achieving your intended results?

Expanded Grade Levels: We will record how many field trips are for grade levels previously not served at the Garden. Our goal being 50% of total field trips be the newly targeted grade levels each semester. We will also track returning and new grades from a particular school across years.

At-Risk Learners: The Education Manager will track the number of returning Boys & Girls Club students for each of their 5 programs throughout the year. We will also track the demographics of each school (available via keysschools.com) to generate an estimated number of at-risk and students served.

Expansion into High School Programming: The Education Manager will track progress through check in meetings with the student, and a report of their final project.

Student-Created Multi-Media: The Education Manager will monitor our progress by creating a multimedia tutorial for each activity in every grade available publicly by the end of their testing period. Success will then be signified by our ability to keep pace with the targeted grade for each phase of content development.

How and with whom will you share your project's results?

All developed curriculum and multimedia associated will be available for free on the Garden's website. This information will be publicized through our partners and funders, social media, and professional presentations.

3.) PROJECT RESULTS:

What are your project's intended results and how will they address the need, problem, or challenge you have identified?

The project's intended results are to expand the number of grade levels served by our hands-on outdoor environmental education program, increase inclusive programming for at risk students, particularly those who are economically disadvantaged, expand the curriculum continuity into middle and high school by mentoring students through the district STEM Fair, and create multimedia evaluation materials that will be the basis of tutorials published online serving as standard-aligned resources available for free to teachers and students.

Students will experience and apply textbook theory in the outdoor *Living Laboratory*. Activities will

enhance learning in a wider range of students and engage the often underserved children of our community (ex. Boys and Girls Club).

How will the knowledge, skills, behaviors, and/or attitudes of the intended audience change as a result of your project?

Research has concluded that when educators teach conservation activities during an environmental education program, the students will be more likely to continue that specific conservation behavior after the program is completed (Baur and Haase, 2015). Environmental education programs can effectively convey conservation knowledge to young participants, who, in turn, influence the knowledge, attitudes, and perhaps even behaviors of their parents (Damerell et al. 2013).

Students will increase their knowledge and understanding of the local ecosystem, the natural processes that support that ecosystem, and its value to living things, humans included, by participating in hands-on projects. All students will gain a greater understanding of human impact on the earth and the role they can each play in environmental stewardship. Transitioning the garden from a single experience into a resource throughout the student's educational career will reinforce the attitudes targeted as well; students will cultivate a respect and sense of ownership for their environment, and the attitudes and behaviors taught will facilitate an increase in environmentally-positive behaviors.

What data will you collect and report to measure your project's success?

In addition to our student-created video activity tutorials, lab books will be used to continuously monitor student growth. Every student will participate in a "Brain Warm-Up" activity at the start of the program where they will record current knowledge in the front of their lab book. This establishes a baseline to which we measure their knowledge gain as they record observations and results of each component of the program in subsequent pages of the lab book. This data will be used to evaluate our program and highlight our efficacy in delivery of standards-based content.

Teachers will be asked to provide feedback on the relevance of the curriculum, the quality, interest, and differentiation of the activities, and the impacts on their students. This feedback will be used to refine our program content and delivery.

What tangible products will result from your project?

Online versions of all of our new programs will be available for free as student-made video tutorials for all teachers, students, and to the public, including homeschool families.

How will you sustain the benefit(s) of your project?

KWBGS is deepening and strengthening relationships with other organizations which provide opportunities for local youth. The partnership with the Boys and Girls Club is a prime example. In its first year, it was wildly popular with the club members (age 6-16) and staff, and this partnership garnered financial support from the Monroe County Sheriff Department through the Sheriff's Shared Asset Fund grant. We are fortunate also to have the Monroe County school district as a long-time partner to provide student transportation. Wells Fargo and Historic Tours of America have contributed towards transportation for students not eligible to use district transportation, by providing two years of grants dedicated to bussing and providing discounted services, respectively.

Last year, we designed a more efficient environmental education program that can be sustainably supported by an existing diversified income streams from gate fees, private donations, site rentals, annual grants from the Florida Department of State, Division of Cultural Affairs; and funding from one or two private foundations with a history of support for KWBGS. However, in order to create a more versatile and expanded program, we require additional support. The IMLS grant will bridge this funding gap, and facilitate implementation of our numerous pilot programs and expansion efforts.

Expanding Living Lab Project Schedule of Completion

