



## **Program Descriptions**

### **Current Projects**

**APEX Science (*After-school Program Exploring Science*).** The Museum was recently awarded a three-year grant to develop and implement a training model that will enhance the capacity of community-based after-school programs to provide science-learning opportunities for children ages 5-10. In partnership with Florida International University and Miami-Dade College, APEX will provide opportunities for pre-service teachers and paraprofessionals to meet a portion of their certification requirements by leading APEX Science investigations in after-school programs. APEX will also train the staff of local community-based after-care providers, preparing them to offer hands-on science as part of their program. *Funded by the National Science Foundation, \$1,225,108.*

**Elementary STEPS (*Student Teacher Enhancement Program for Science*).** The goal of this collaboration with Florida International University (FIU) and Miami-Dade County Public Schools is to explore the impact of adding a science museum to the professional development school model. The project includes a one-week summer institute for supervising teachers and student teachers, a two-week internship for student teachers in the Museum's summer camp, and field study and student teaching placements for student teachers. By utilizing the resources and expertise of museum science teacher-educators and scientists, together with FIU education faculty, the project will strengthen supervising teachers' science content knowledge and pedagogy while preparing future teachers to implement standards-based inquiry-oriented science instruction. *Funded by the U. S. Department of Education/FIPSE, \$511,901.*

**PD<sup>3</sup> (Professional Development Decisions Using Data).** In collaboration with SRI International, one of the nation's foremost research institutions, the Museum is developing and testing an observation tool for science and mathematics that will help school administrators recognize "best practices." The handheld tool will be used to collect data in the classroom that can be transferred to a Web server application, providing principals with data and tools to support school improvement planning. The Museum will train a statewide cadre of Master Trainers on use of the handheld observation tool, and continue to administer the network of Professional Partners established under the initial FloridaLeaders.net project, to will provide site-based coaching and follow-up support to principals throughout the state. *Funded by the Florida Department of Education, \$799,802.*

**Superintendent's Urban Principal Initiative (SUPI).** The Museum is participating in this project led by Miami-Dade County Public Schools (MDCPS) in collaboration with the Council for Educational Change and the Education Fund. The goal of the project is to design and implement an innovative leadership model that will support the development and retention of highly skilled principals leading the hardest to staff, lowest performing schools. SUPI will prepare, develop, and support aspiring and current school leaders to be successful in meeting the challenges of school improvement in the district's urban core. The grant funding will support a continuum of development – recruitment, selection, training, mentoring assessment, compensation – leading to the retention of specifically prepared, quality principals. The Museum's role in SUPI is to expand and retool its statewide *Professional Partners* mentoring network of retired district and school administrators to deliver the new professional development programs developed for SUPI. *Funded by the U.S. Department of Education, \$898,949.*

**ECHOS (Early Childhood Hands-On Science).**

*ECHOS* is a science-based early childhood curriculum aimed at fostering early language skills, social skills, cognitive development, and basic science and mathematics concepts among children ages 3-6. Covering age-appropriate science concepts in an investigative and interactive format, the curriculum provides early childhood educators with the resources for delivering seven modules, including detailed instructions for delivering the lessons, suggested hands-on activities, a list of materials, vocabulary words, related books and songs, and at-home activities for parents. An *ECHOS Teacher Guide* is available separately, as well as *ECHOS*

professional development workshops, in which Museum science educators model the delivery of the *ECHOS* curriculum. Early childhood educators can also expand their technology skills by adding a hands-on computer workshop, *Exploring Online Resources for Early Childhood Science Education*. The Museum is currently using *ECHOS* to train Head Start teachers throughout Miami-Dade.

**YES! (Youth Experiencing Success).** Through a sub-award from the City of Miami's Division of Parks and Recreation, the Museum is providing a science and technology component for the City's after-school program, supported by a grant from the Children's Trust. Museum staff will help set up computer labs at each of the five participating park sites, and will train park staff on the use of software to support reading and science activities. The Museum will also train and equip park staff to deliver hands-on science activities, aided by youth and college mentors from the Museum's Educational Opportunity Program. The Museum will provide Wildlife Demonstrations at participating sites, and will also host a series of Family Days at the Museum, open to participating children and their families. *Funded by the Children's Trust, \$64,418.*

**Get Set (Science, Engineering and Technology).** In this three-year project, the Museum is partnering with Miami Springs Middle School to establish a science magnet program. Each year, 50 Miami Springs students will take part in in-depth, ongoing science investigations at the Museum, attending twice per month for the full academic year. A further 150 students will visit the Museum each month on field trips, taking part in science demonstrations, planetarium shows, and curriculum-based hands-on investigations. Miami Springs science teachers will participate annually in a summer institute aimed at increasing technology integration in the science curriculum and classroom. Get Set also includes two Family Nights per year, to showcase participants' work and familiarize parents with the Museum as a science-rich community resource. *Funded by the U. S. Department of Education, \$299,849.*

**IMPACT (*Integrated Marine Program And Computer Training*)** is an Upward Bound Math and Science Center, the first in the nation to be led by a science museum. Now in its sixth year, the program provides academic enrichment opportunities to low-income, first generation college-bound students, exposing them to the world of post-secondary study and inspiring them to complete high school, enroll in college, and engage in pathways toward science, math and technology careers. IMPACT is conducted in partnership with University of Miami's Rosenstiel School of Marine and Atmospheric Science. *Funded by the U.S. Department of Education 1,691,000 to date.*

<http://www.miamisci.org/impact/impact.html>

**BioTrac (*Biomedical Training, Research and College Prep*).** In collaboration with the University of Miami's School of Medicine and Miami-Dade County Public Schools, the Museum has designed and implemented a model program to expand opportunities in biomedicine for low-income, first-generation college-bound high school students, increasing the number interested in and prepared to enter the biomedical research pipeline. In Phase I, students investigated biomedical fields through hands-on lab activities, online research, site visits to research facilities, and internships with research scientists at UM's nationally renowned Jackson Memorial Medical Complex. Now in Phase II, BioTrac is serving as a national demonstration site, extending strategies and materials to other formal and informal education entities through on-site workshops, professional conferences and publications. *Funded by a Science Education Partnership Award from the National Institutes of Health, \$1730,000 total.*

<http://www.miamisci.org/biotrac>

**RISE (*Raising Interest in Science and Engineering*).**

Building on previous collaborations with Miami-Dade County Public Schools (MDCPS) and SECME (the Southeast Consortium for Minorities in Engineering) the Museum is implementing a program aimed at raising awareness of, and interest in, engineering and advanced technology among high school girls, particularly girls of color. The project will work with a total of 80 girls recruited from Miami's most underserved high schools, engaging them in engineering and technology-related activities aimed at creating tabletop science exhibits. The following school year,

RISE girls will lead exhibit design challenges with fellow SECME Club participants at their school, and will also serve as Museum interpreters, demonstrating their exhibits to the public. RISE will provide professional developments for science teachers at target high schools, aimed at enhancing gender equity teaching strategies, raising awareness of technology and engineering career opportunities, and improving technology integration skills. The project will also include a strand for parents, raising their awareness of how they can support their daughters' pursuit of science education and careers. *Funded by U.S. Department of Education, \$957,432.*

### **Recent Projects**

**Florida BEST (*Building Expert Science Teachers*).** In collaboration with Miami-Dade County Public Schools and Miami-Dade College, the Museum is developing a support system for beginning science teachers that will impact their confidence and skill in providing challenging science curriculum. Through a technology-infused summer institute and ongoing on-site and peer support, Florida BEST provides early career science teachers with the reinforcement and content knowledge needed to reduce teacher attrition and improve student achievement. *Funded by the Florida Department of Education, \$94,155.*

**FLN (*Floridaleaders.net*).** FLN was a statewide technology leadership development program focused on building school leaders' knowledge and skills to effectively use technology to promote student learning. Using a statewide network of master trainers, with mentoring support provided by retired principals serving as "Professional Partners," the project reached 3,569 principals and superintendents in all 67 Florida counties. *Funded by the Bill & Melinda Gates Foundation, the Florida Department of Education and the South Florida Annenberg Challenge \$5,000,000. (<http://floridaleaders.net>)*

**START (*Southeast Student Teachers Are Revitalizing Teaching through Technology*).** Using a faculty development "training of trainers" model, START supported innovative teacher preparation to develop technology-proficient educators. The Museum and the University of Miami collaborated on this "Preparing Tomorrow's Teachers to use Technology" (PT3) catalyst grant, working with arts and science and education faculty in 50 universities and colleges in six southeastern

states, preparing them to integrate technology-rich resources into the postsecondary science curriculum. *Funded by U.S. Department of Education, \$2,098,000. <http://start.miami.org>*

***Intel(R) Teach to the Future.*** Under this initiative, the Museum served as Intel's Regional Training Agency for the State of Florida, responsible for recruiting and coordinating delivery of technology training for 160 master teachers throughout the State. Over the course of this two-year grant, more than 4,800 participating teachers received training in the integration of technology into the classroom curriculum. *Funded by Intel with support from Microsoft, \$230,000.*

***Space OLE.*** In collaboration with Miami-Dade County Public Schools, the Museum developed and tested an innovative earth/space science online expedition (Space OLE!), designed as a resource for helping teachers meet the District's mandatory ninth grade Earth/Space Science requirement as well as National Science Education Standards. Using networked and video technology, Space OLE! uses a mission-based Web interface to engage students in a collaborative online research expedition into space. Initially pilot-tested with students and science teachers at one MDCPS high school, this web-based resource is now available to all 40 high schools in Miami-Dade. *Funded by NASA/IDEAS. \$50,000.*

<http://www.miamisci.org/spaceole>

***SUCCEED (School University Community Coalition for Excellence in Education).*** A partnership with the University of Miami's College of Arts and Sciences, School of Education and with Miami-Dade County Public Schools, SUCCEED focused on preparing teachers to meet the demands of 21st Century classrooms that are increasingly diverse in terms of language, culture and special needs. The Museum's role in this five-year project was to provide hands-on technology integration training for prospective teachers, in-service teachers and professors in residence. *Funded by the U.S. Department of Education \$600,000.*  
<http://www.miamisci.org/great>

***GREAT! (Girls Redesigning and Excelling in Advanced Technology).*** For this three-year initiative, the Museum designed and implemented an innovative model program to increase the confidence, interest and preparedness of middle school girls to pursue academic and employment opportunities related to high-end careers

in the field of information technology. Using girls-only, hands-on, project-based strategies in the Museum's informal environment, GREAT! allowed girls to assume the roles of IT designers, building basic technology skills and then learning to use high-end 3-D animation software to design virtual exhibits for display in the Museum galleries. *Funded by the National Science Foundation, \$899,000.*

<http://www.miamisci.org/great>

**SECME R.I.S.E. (*Raising Interest In Science and Engineering*)** was a collaboration with Miami-Dade County Public Schools and SECME, Inc. (formerly the Southeastern Consortia for Minority Engineers). The project featured career explorations, engineering challenges, peer leadership training, teacher professional development and parent involvement activities, aimed at stimulating girls' interest in science, engineering and technology and raising their self-confidence about pursuing related studies and careers. As a result of the project, RISE strategies were replicated in all middle schools throughout Miami-Dade. *Funded by the National Science Foundation \$899,000.* <http://miamisci.rise>

**STEP UP (*Student & Teacher Enhancement Program Using Palms*)**. Under this grant, the Museum developed and implemented training for teachers and underserved youth on the use of personal hand-held devices (PDAs) to enhance classroom and field-based science learning. The Museum provided a Palm PDA and related training for up to 100+ low-income youth participating in the Museum's Upward Bound program, preparing them to use the PDA as a word processor, a graphing calculator, and as a tool for science-based inquiry. The Museum also provided a classroom set of PDAs and related probeware for classroom-based science experiments to science teachers at target high schools, enhancing their ability to integrate technology into their classroom curriculum. *Funded by the National Annenberg Foundation, \$125,000.* <http://www.miamisci.org/stepup>