

SPACE LIFE SCIENCES SYMPOSIUM (A1)

Public Outreach and Education - Integral Elements of Space Life Sciences Program Development (8)

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asmith@wylehou.com21ST CENTURY EXPLORER BILINGUAL SCIENCE & ENGINEERING INQUIRY-BASED
SUPPLEMENTAL CURRICULAR MATERIALS**Abstract**

Exploration is a natural desire of every human being. NASA captures the desire to explore the unknown elements of space through the initiation of innovative and progressive elementary content. As we look toward the future, inspiring our next generation of space explorers to study in the STEM fields is critical. NASA's 21st Century Explorer (21C) Project was developed in an attempt to help fulfill this critical need.

Twelve bilingual (English/Spanish) educational packages were developed for the 21C website (education.jsc.nasa.gov/explorers). Each 21C package is dedicated to space exploration concepts and consists of inquiry-based hand-on activities, an educator guide, and supplemental resources. These packages target students 8-12 years of age and are designed to be both fun and interactive by correlating NASA concepts with the scientific method. The 21C packages have been evaluated with approximately 500 students through informal venues, with positive qualitative responses from students, educators, parents, and mentors.

All 21C packages were beta-tested in a 3-week after-school venue after a face-to-face training of both formal educators and para-professionals in three different South Texas school districts and 10 different schools. The after-school experience ended with a culminating event at a local university where the 150 student participants were given an opportunity to have their final space exploration projects judged. The first full-scale after-school program, also with face-to-face training, involved 14 schools in a 5-month experience. This full-scale after-school initiative included an additional program where a school integrated 21C packages to help parents learn English as a second language. These 210 students and 28 parents were all invited to a culminating day-event. Additionally, NASA's 21C was evaluated in another after-school program used to assist at-risk students' transition to a new campus, allowing them to experience the excitement of NASA exploration, while familiarizing themselves with the new school setting.

NASA's 21C was approved for a NASA grant to work with Girl Scouts (GS) USA, where the packages will be modified to meet the specific needs of the GS. Girl Scout Leaders will be trained on the modified

packages both face-to-face and through e-learning. The intent is to reach a wider audience by moving to an e-learning system.

Qualitative data has been received through each 21C training and program implementation. Evaluation tools are currently being modified to gather precise quantitative data for all future 21C experiences. By obtaining measures to assess the effectiveness of 21C, NASA will continue to address STEM deficiencies.