



Ocean Science Explorers Initiative



Initiative Narrative

From September 2009 through November 2009, Ocean Discovery Institute **provided classroom-based, experiential science education to 564 low-income students and 20 teachers**, including professional development for classroom teachers, hands-on activities, thematic curriculum, books and materials, a field experience to study conservation concepts and an environmental service project that students implement at the completion of the program.

The initiative was expanded to reach two new schools this year. In total, this fall the program was provided to **all 4th grade classes at five elementary schools** in low socio-economic status communities. Approximately 25% of work has been completed, with the remaining 75% expected to be completed by July 2010.

Summary of Activities:

<p>In-Class Activities</p> 	<p>All students participated in four to five hands-on, interactive, standards-based science lessons in their classrooms led by Ocean Discovery Institute staff. Interactive program content introduced students to science in genuine ways, helping them make connections between science and their own lives and communities.</p> <p>4th Grade students became “Wetland Avengers” learning about the importance of the wetland ecosystem and watershed functions.</p>
<p>Field Exploration</p> 	<p>All students participated in one science focused field trip led by Ocean Discovery Institute staff, offering a venue for experiential learning of science content and an opportunity to explore local coastal resources. Field-based learning allowed students to apply their knowledge gained in the classroom and to understand the relevance of science.</p> <p>4th Grade students explored wetland habitat at the Chula Vista Nature Center through six field trips, learning about the habitats and wildlife of San Diego Bay.</p>

<p>Environmental Service</p> 	<p>All students participated in a locally-based environmental service project related to the science curriculum and led by Ocean Discovery Institute staff. By participating in locally-based environmental projects, students gained the understanding that they can make a difference, encouraged others to participate in stewardship and increased everyone's ability to increase quality of life within highly urbanized communities. Students learned about environmental issues, the impacts that their actions upstream have on San Diego Bay, and how they can take action to improve water quality.</p> <p>In partnership with the San Diego Canyonlands, Inc. 4th Grade students worked with community volunteers to conduct habitat restoration in an urban canyon neighboring their school. Restoration activities varied depending on each canyon's needs and included watering native plants, picking up trash, and enhancing trails. Four environmental service projects were conducted.</p>
<p>Classroom Teacher Support</p> 	<p>In order to increase the number of teachers who provide quality hands-on, interdisciplinary science education to their students in the early grades, Ocean Discovery Institute provided activities to increase teachers' comfort and facility in science. All fourth grade teachers received supports and classroom materials to enrich and extend their students' science and literacy learning.</p> <ul style="list-style-type: none">• All teachers participated in a curriculum-based professional development workshop led by Ocean Discovery Institute.• All classroom teachers received standards-based lessons linked to the hands-on science activities for use in their classrooms.• All classroom teachers received theme-related books for use with the curriculum units, enabling them to meet language arts requirements.

Problems Encountered and their Resolutions

Due to the many partnerships involved in this initiative, finding schedules that work with all partners and communicating across all entities is challenging. Schedules are set at the beginning of the semester to accommodate everyone; however, last minutes schedule changes arose for multiple partners. We communicated with all partners and easily resolved the issues by re-scheduling, so that the total number of students or teachers served was not affected.

Activities Planned for the Next Quarter

In the winter of 2009-2010 the 4th grade unit will be completed with final field trips to the Chula Vista Nature Center and final environmental service through planting native plants in the canyons.

3rd and 6th grade units will begin with Professional Development for teachers as well as the in class lessons, as outlined below:

- **3rd Grade:** Students will become *"Invert Investigators"* learning about invertebrate adaptations to the rocky seashore habitat and how coastal habitats are linked to inland neighborhoods.
- **6th Grade:** Students will become *"Time Travelers"* using geologic evidence to discover what the Earth was like in the past and the forces that are shaping its future.

Cumulative dollars spent to date: \$7,500

Initiative Outcomes

Ocean Discovery Institute verifies program success based on the outcomes of quantitative and qualitative evaluations led by Roxanne Ruzic, Ed.D., a contracted specialist in educational research. Dr. Ruzic received her doctorate in education from Harvard University. She is an education and research consultant and teaches graduate level courses in research methods for Chapman University.

Content assessments, attitudinal surveys, and interviews were administered and are being entered for future analysis. In addition, student and teacher participation information is tracked.