



New Haven Unified School District

# Bringing Science to Life for Students, Teachers and the Community

## New Haven Unified School District, Union City, CA



Cabello Elementary School

Kimberly Pratt - Principal Investigator  
Alvarado Elementary School, Union City, CA

<http://web.mac.com/bwet>

### Goals and Objective

Increase student achievement in science on the California State Science Test, increase student academic and cognitive skills in science, writing, mathematics, oral communication and technology. Improve teachers' skills and increase community awareness of local pollution and watershed protection.

### Project Overview

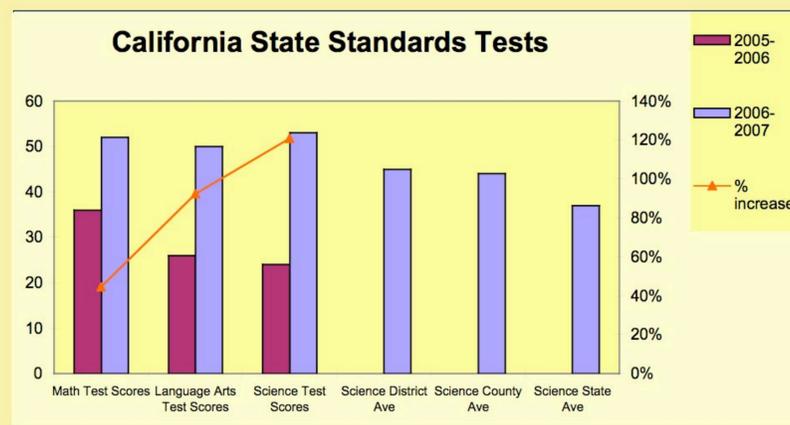
*Bringing Science to Life for Students, Teachers and the Community* engages and energizes students in learning science and the protection of the SF Bay Watershed, provides staff development for teachers, and educates the community about conservation of our local watershed. The project took place at the Cabello school site, "Cabello Creek", Fitzgerald Marine Reserve, and the Monterey Bay National Marine Sanctuary. Students participated in more than 7 outdoor experiences ranging from visiting storm drains, monitoring debris at our local creek, participating in a creek clean up, visiting a wastewater treatment plant, observing tide pool creatures at the Fitzgerald Marine Reserve, and traveling to the Monterey Bay Marine Sanctuary to learn basic seamanship and observe gray whales and humpbacks. Our primary issue was pollution throughout the watershed and pre-activities for students included: pre-assessment and direct instruction on the definition of a watershed, non-source point pollution, and the effects of marine debris and human impact on marine animals. Teacher pre-activities included field training at the Fitzgerald Marine Reserve. Students explored environmental topics including direct instruction on watersheds, storm drain brochure flyers, making watersheds, garbage and debris observation at storm drains and creeks, creek clean up, environmental awareness calendars, and research reports of marine life. Teachers participated in curriculum design and modification, program updates and support. Post activities included: student and teacher post assessment, parent surveys, California State Standards Test and Ocean Night, where the community was invited to share our discoveries through the year with booths, and our musical "Tide Pool Condo's". Data collection included; pre, mid and final evaluation by students, parent surveys, classroom science scores and California State scores. This data helped us in defining our program next year and was instrumental in the decision to bring the program to fourth grade. Outreach included; storm drain brochure dissemination by Union Sanitary District, community support through donations and the community's participation in Ocean Night, in which community members learned about our watershed and the need for its protection.



### Evaluation Plan

Pre, mid and final surveys of students, parents and teachers that were both multiple choice and fill in answers. Evaluation also included curriculum embedded assessment and the California State Tests.

### STAR Test Results



Fifth grade scores comparing two academic years in three subject areas. Students showed 120% increase in science scores. Reading/language arts scores increased from 26 to 50 in one year. Math with language arts scores increased from 24 to 53 in one year.

### Results and Conclusion

Total student engagement and focus.

- 120% increase in students' science scores on the California Standards Test.
- Reading/language arts scores increased from 26 to 50 in one year.
- Math with language arts scores increased from 24 to 53 in one year.

Utilizing curriculum embedded assessment, student scored an-average of 77% and 81% on their independent research projects.

Utilizing student survey's students test scores on their knowledge of the watershed rose from .03% to 93%.

Parents', teachers', and community members' knowledge of the watershed increased dramatically-70-100%-as a result of the program. Subsequent years will focus on increasing teacher self-evaluation.

The program's success in fifth grade, has led to us expanding the program to include 4<sup>th</sup> grade next year.

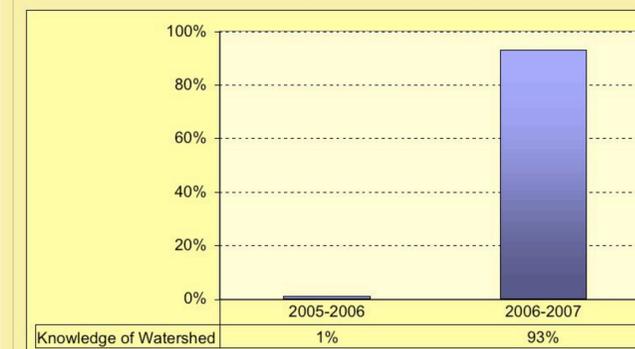
Planned changes include: active collaboration between 4<sup>th</sup> and 5<sup>th</sup> grade teachers; teacher training and development of grade-appropriate curriculum; adding a water quality testing component; changing the whale watching cruise to an ecological science trip on the Bay that includes science stations on the boat teaching, plankton identification, water clarity testing, water quality testing and navigation.

### Acknowledgements

We would like to thank the Bay Watershed Education Training (B-WET) Program of the National Oceanic and Atmospheric Administration for the support of this project and our partners; New Haven Unified School District, Lawrence Hall of Science, and Cabello Elementary.

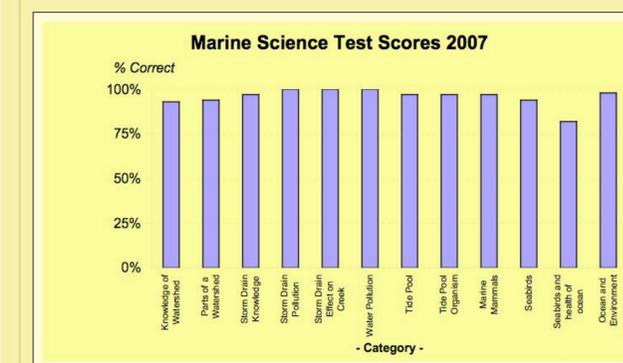
### Analysis

#### Watershed Knowledge



Students' knowledge of the watershed jumped from less than 1% to 93% in one academic year.

### Benchmark Survey Scores



End of the year, marine science post survey shows all students have at least 80% proficiency in all categories.



### Products



Storm drain awareness brochures, B-WET calendar, Ocean Night DVD, watershed curriculum, creek curriculum, and marine research reports.