



University of California Agriculture and Natural Resources
In partnership with
Hayward Unified School District

4-H Water Wizards 2022-23 Final Report



Students learn about water use in agriculture during a field trip to Taylor Street Farm.

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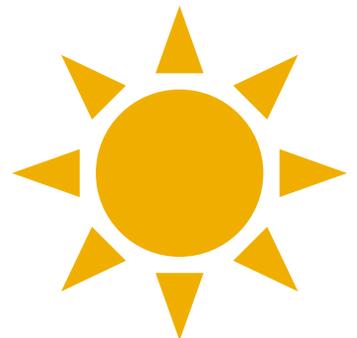
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Program Description

4-H Water Wizards is a 12-week project that teaches 4th-6th grade students about water and its importance to the planet. Developed by the University of California Cooperative Extension's 4-H Youth Development Program, and delivered during the school day, the project is designed to encourage students to explore and discover about water as they become scientists themselves. The project includes:

- **Training for science specialists:** To build competence and confidence, we provided two, three-hour training sessions for elementary-school science specialists who delivered the curriculum. During this time, we also distributed supplies and curriculum, so teachers had everything they needed to deliver the program.
- **Hands-on learning experiences that encourage inquiry:** Students learned about the water cycle, watersheds, water usage, pollution, and water properties through building models, conducting experiments, and making observations. They construct a watershed; conduct a home water use survey; and explore salinity, density, taste, and hardness through experimentation. True to Next Generation Science Standards, students investigate and create understanding through experience.

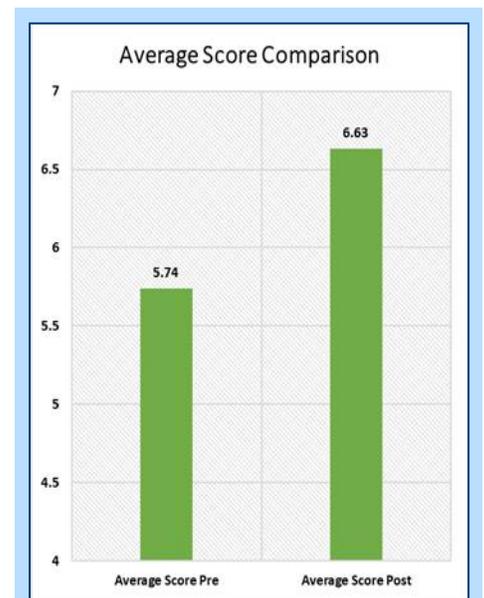


- **Visit to Taylor Street Urban Farm or Crab Cove Regional Park:** Last spring, all classes who participated in Water Wizards were able to attend a field trip where they learned about the ecological and agricultural importance of water. At both locations, students had the chance to do a hands-on activity about groundwater infiltration. Additionally, youth at Taylor Street planted seeds to learn about plant germination, interacted with chickens, learned about compost, and toured the urban farm located close to their homes. At Crab Cove Regional Park, youth explored the park's Aquarium and learning center and adventured through a tide pool.
- **Audience:** Over 500 students participated in HUSD's 4-H Water Wizards project in the 2022-23 school year. In HUSD, 68.76% of youth are socioeconomically disadvantaged, and 30% are English language learners. Participating schools included Burbank, Eden Gardens, Longwood, Shafer Park, and Southgate.

Project Outcomes

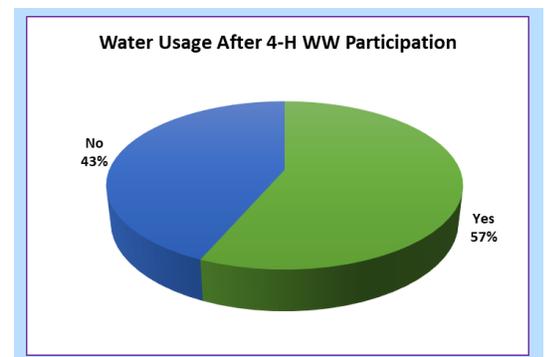
We measured project effectiveness through pre- and post-survey data. All students were given a pre-survey the first week or two of the project, and a post-survey at the conclusion of the project. Some of the results from this year's evaluation include:

- **Increase in student knowledge:** Sixty-one percent of students surveyed improved their scores. The average test score increased from 5.74 to 6.63 on a scale from 0 to 10. This indicates growth in their knowledge about watersheds, water salinity and density, scientific instruments, water issues in their community, and important considerations when conducting a scientific study.
- **Appreciation for water issues:** Students demonstrated an understanding of drought and water conservation as important water issues in California as 57% indicated that they were using less water as a result of participating in the program.



Project Challenges

The 2022-23 project began late last winter and this, combined with the multitude of topics the elementary school science specialists needed to cover, left inadequate time to fully implement the project.



Plans for 2023-24



Students layer water in an experiment to determine which water sample has the greatest density.

Interest in 4-H Water Wizards is growing and the project will expand delivery from five to six schools, with over double the number of teachers participating, in the 2023-24 academic year. Classroom teachers will join the elementary school science specialists at training and in delivering curriculum. This should allow more time to cover content and, we hope, to plan and implement a student-driven service-learning component of the project. Field trips are scheduled for Crab Cove Regional Park.