Project WEST: Partnering to Enhance Inquiry Based Science Teaching in the Salt Lake City School District

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ABSTRACT
Project WEST (Water, the Environment, Science, and Teaching) is a graduate student fellowship program funded by a grant from the National Science Foundation. WEST links the University of Utah, the Utah Museum of Natural History, and the Salt Lake City School District in enhancing inquiry-based science teaching in grades 4, 8, and 9 and the interdisciplinary training of university graduate students. The unifying theme of WEST (water and the environment) emerges because of its simplicity and significance for human survival and livelihood in the arid west. National standards and Utah standards for teaching science in this grade range lend themselves to focusing on the environment and particularly on the role of water.

Teaching fellows share scientific insight with K-12 educators and students, develop inquiry-based science activities, participate in science fairs, and lead field trips throughout the Wasatch Front watershed. Educators, in turn, share teaching methodologies and experiences with the teaching fellows and serve as mentors for those interested in science education. The partnership between teaching fellows and educators aims to inspire excitement about the process of scientific discovery.

WEST GOALS
Goal 1: Foster inquiry-based learning in each of 12 schools by establishing partnerships between public school teachers, University of Utah faculty, and graduate student fellows.
Goal 2: Effectively communicate to public school students the plight of humans in nature. Accomplish this goal in a manner that: (1) heightens awareness of human-environmental interactions and educational standards; (2) communicates the inter-disciplinary nature of science; (3) leads to new environmental stewardship; and (4) instills a sense of wonder and passion about nature.
Goal 3: Generate productive mentoring relationships between science graduate students and public school students.
Goal 4: Provide professional development tools (workshops, materials, partnerships) to public school teachers that enable more effective science teaching.
Goal 5: Enhance graduate student training by conducting interdisciplinary, collaborative research, providing instruction on communication and teaching skills, and encouraging active involvement in public school education and science mentoring.

PARTICIPATING SCHOOLS
* Excelenten Elementary
* Bonneville Elementary
* Nileth Park Elementary
* Glenale Intermediate School
* Parkview Elementary
* Indian Hills Elementary
* Bryant Intermediate School

THEMES & FACULTY AND FELLOWS

NUGGETS & ACCOMPLISHMENTS (Year 0.5)
Fellows took 15 fourth-graders on a field trip to Rock Cliff Nature Preserve to conduct experiments on water chemistry, animal foraging behavior and river processes. Field trip was presented by a master-fellow screening trip.

WEST fellows installed weather stations at three schools in Salt Lake City School District. These stations will be used to observe differences in microclimates between school, seasonal daily variations in temperature, pressure and wind, and how measurements change with the presence of landscape-scale weather systems. Data will be available on a common webpage and will be displayed publicly at each school.

Overseas-What kids say! “I hope we are doing science today!” After a lesson on pressure, wind and weather, one student said, “I can’t wait to go outside and see what types of clouds there are.”

These experiences suggest that WEST fellows are increasingly becoming effective mentors and positive role models that enhancing students’ interest in science and curiosity of the natural world.

In collaboration with the Salt Lake City School District and Excelenten Elementary, WEST fellows submitted two grant proposals to transform an urban in the center of the school into a desert habitat with a wide range of native flora. This endeavor has been appropriately named the “Excelenten Desert” project. The project has three main objectives: 1) To expand studies of desert and plants native to the Mojave desert and 2) involve students in the planning and creation of their own “Excelenten Desert” and 3) Teach students about environmental responsibility and endangered/biomass species of plants and animals.

As a complement to their efforts with K-12 students, WEST fellows attended a cross-disciplinary seminar that focuses on the Great Salt Lake as a climatological indicator. As part of the seminar, fellows research and present information related to the science of water and the environment. Guest lectures by faculty amplify hydrological concepts. The picture above shows fellow in school and faculty in the Wasatch Mountains, more than 4000 feet above the Great Salt Lake, examining the source of water used for the lake. The measured pH of the snow at this location is 4. Concepts learned in the seminar ultimately get transferred back to the K-12 community in the form of lesson plans and experiments.

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