

The Rural Science Education Program impacted 1838 rural students in elementary, middle and high school classrooms. Due to the size and nature of rural communities, in 72% of schools, every student in the 6th, 7th, 8th and/or 10th grade was a participant. Students benefited by enhanced science vocabulary, opportunities to engage in content-rich, hands-on inquiry-based activities, and access to the science around them. OSU Fellows provided a diversity of role models (in particular, women and Hispanics as scientists) for K-12 students interested in pursuing a career in science. Campus visits provided K-12 students exposure to scientific research at a large university.

Lessons implemented in rural classroom covered a range in topics including: the nature of science, bacteria, fungi, mold, photosynthesis, respiration, germination, salmon development, cell organelles, mitosis, meiosis, soil, water cycle, water quality, predator-prey interactions, camouflage, floral and faunal diversity, insect behavior, etc. Several lessons were multidisciplinary such as comparison of DNA extracted from diverse trees on school grounds, plant-animal-human relationships, etc. Rural Students were also involved in [community projects](#). Students were engaged in discussions on topics of social relevance such as AIDS, non-point source pollution, GMOs. Students gained experience in writing procedures and reports. In Central Linn, students were engaged in a unique activity of writing grants for \$ 100 awarded by the program for purchase of science related materials.

Besides consumable supplies, university resources used by OSU Fellows included: live insects, quail, chicken, skulls and bones, vacuum pump equipment for *E. coli* filtration, LB and agar media, microscopes purchased through grant or donated by OSU, balances, plant presses, pH meters, temperature and humidity loggers for microclimate data collection, etc. During field trips to OSU, rural students experienced advanced technology such as 3 D imaging of DNA/RNA/Protein, and visited facilities such as the herbarium, and greenhouses.

A case study indicated that 6.7 % more rural students found that science was exciting at the end of the year compared to the beginning. Evaluation of 'before' and 'after' science content quizzes indicated significant increases in scores (Fig. 1). In a Draw-a-Scientist-Test” (DAST) students were asked to draw a scientist in September and again

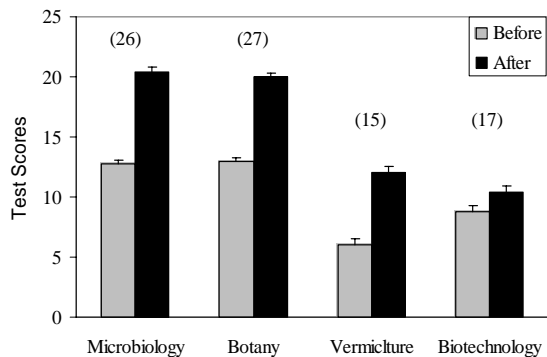


Fig. 1. Rural student scores (+ se) on science content quizzes. Numbers in parentheses refer to total score on test.

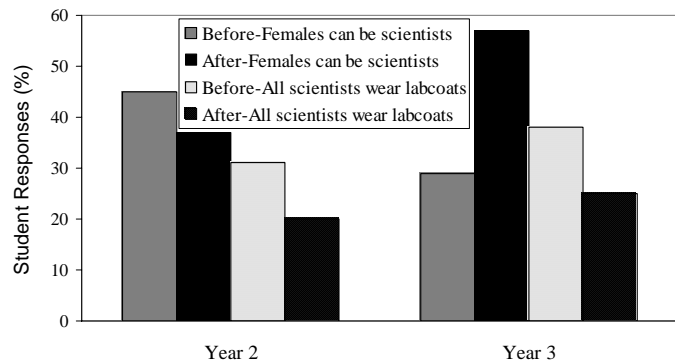


Fig. 4. Rural student responses on DAST for estimation of perceptions on whether: a) females can be scientists; b) all scientists wear lab coats.

For all tests, the analyses are preliminary. It was not possible to have a control, and factors other than the program may have played a role, but the program clearly had a positive impact on attitude to science and science content acquired by rural K-12 students. (see Support Letter 6 and additional ones at <http://cropandsoil.oregonstate.edu/rsep/>).

Additional unique impacts include:

- A new biotechnology unit was introduced in 3 schools enabling the students to run DNA and protein gels, and become involved in an engaging forensic simulation.
- Alsea students mentored by OSU Fellow received a grant from National Garden Association.
- Scientific vocabulary learned during lesson on water properties taught by OSU Fellows enabled a student answer a question on state English test.
- A parent in Greater Albany approached a donor, while parents in Lebanon approached the Principal for support for program continuation.