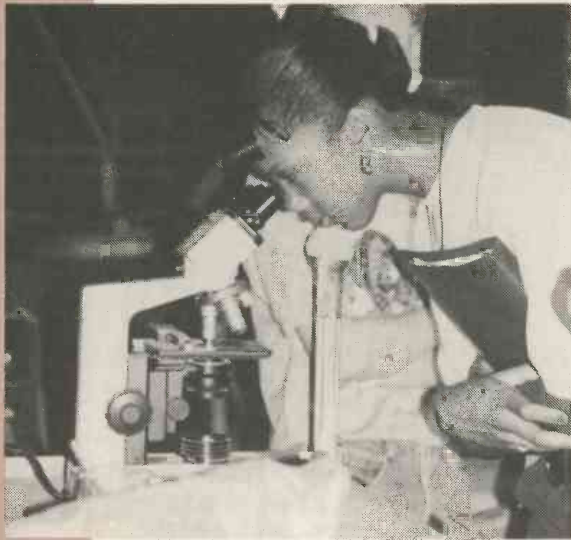
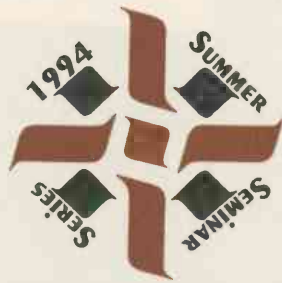
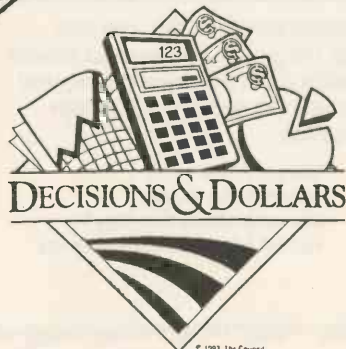
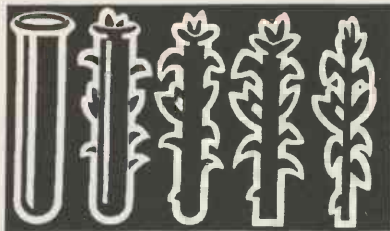


## Education beyond University Walls



S. McGinley



### Summer Programs

During the summer, the College invites high school students and secondary school teachers on-campus for special programs:

**The Horizons Unlimited Science Program** offers high school students the opportunity to experience college life, gain self-confidence, and acquire academic credit through a residence program held on the UA campus. Qualified high school juniors and seniors may take courses in different areas, depending on the year. Minority students have represented 50 percent of the enrollment or more in past years.

The program changes annually, and may include courses on genetic engineering; health and biology of animals; human development; and environmental studies.

**The Young Scholars Program** selects outstanding high school applicants to participate in laboratory research on campus in the College of Agriculture. The one-week agenda features faculty mentors and an opportunity to interact with graduate students and technicians. The experience helps the high school participants define their career goals and encourages them to pursue their interests at the college level.

This pre-college outreach also enables students to perform original rather than textbook based research, helping them to understand how science and technology fit into real world situations.

**The Department of Agricultural Education Summer Workshop Series** offers secondary and vocational agriculture teachers hands-on instruction in contemporary subject areas they can incorporate into their own classrooms. Past offerings have included studies in beginning and intermediate biotechnology; aquaculture education; ornamental horticulture, turf and landscape management; and financial planning for vocational agriculture teachers.

Teachers attend classes at The University of Arizona for one or more weeks, depending on the program. For each course, participants actually do the activities they will teach their students later. In biotechnology, for example, they perform tissue cultures; in aquaculture they build fish tanks for classroom use.

For the financial planning course entitled **Decisions and Dollars**, teachers learn how to incorporate a management information system specifically designed for agricultural classroom instruction, supervised experience programs, and Future Farmers of America (FFA) activities. Agricultural educators all across the United States helped develop the project.

## Curriculum Programs for Grades K-12

### Project WET

Project Water Education for Teachers (WET) Arizona is an interdisciplinary, supplementary water education program for Arizona educators. Public and private school teachers, 4-H leaders, science methods instructors, Boy and Girl Scout leaders, and other group leaders will find WET resources and services valuable for classroom use. WET resources are for learners of all ages, although primary emphasis is given to providing teaching aides for kindergarten through grade 12 teachers.

Project WET sponsors believe that educating youth about Arizona water resource issues and concerns is an important component of the state's water management program. Through the use of Project WET services and resource materials, Arizona youth will gain the knowledge, skill and commitment needed to make more informed decisions regarding water resources management.

Program teaching aides are designed specifically for Arizona educators. They address a wide range of water related concepts, including Arizona's surface water, and groundwater and contemporary issues such as water conservation, water pollution, water rights and water competition. The teaching aids and activities are hands-on, self-contained and, most importantly, user-friendly. Examples include activity and reference guides, water resources management simulators, a groundwater flow model education package, water resources maps, films, videos and slide presentations, plus brochures, research reports and documents.

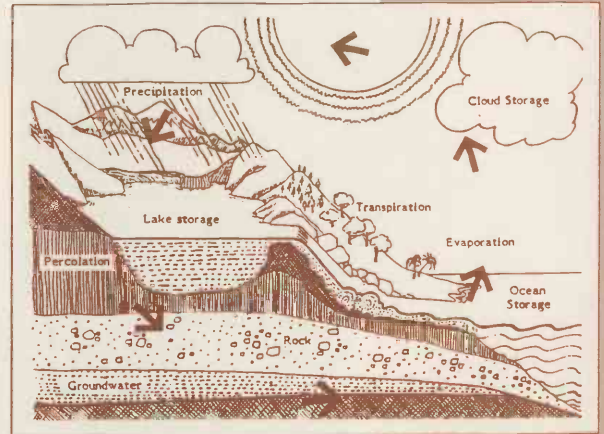
Educators can arrange to receive most Project WET resources by calling, writing or visiting the Project WET Arizona personnel located on The University of Arizona campus.

### Insects in the Classroom

Members of the Center for Insect Science Education Outreach have found that live insects are valuable tools for teaching science as well as other disciplines in the elementary school classroom. Children find them exciting and remember concepts and information much longer when live insects are used in the curriculum. With this in mind, the CIS has developed the curriculum *Using Live Insects in Elementary Classrooms for Early Lessons in Life*. This project was funded through a grant from the National Institutes of Health, Science Education Partnership Award and an Eisenhower Math and Science Award.

It contains 20 lesson plans designed to introduce health topics to children in kindergarten through third grade. Each lesson addresses health, science and math essential skills using children's literature, science process, language arts, and hand-on interactions with insects in the exploration of a health topic.

Teams of teachers, CIS staff and scientists from Arizona and Massachusetts collaborated to create the lessons. The lesson plans were piloted by 177 teachers and some 5,000 students in four states. During 1993, more than 400 teachers from six states participated in workshops focused on using the curriculum. The Center for Insect Science was recently awarded an additional grant from the National Institutes of Health to nationally disseminate the lesson plans through teacher institutes to be held in 36 states over the next three years. The lessons are being translated into Spanish, and future plans include revising several of the lessons for use in classrooms on the Hopi reservation.



The Hydrologic Cycle

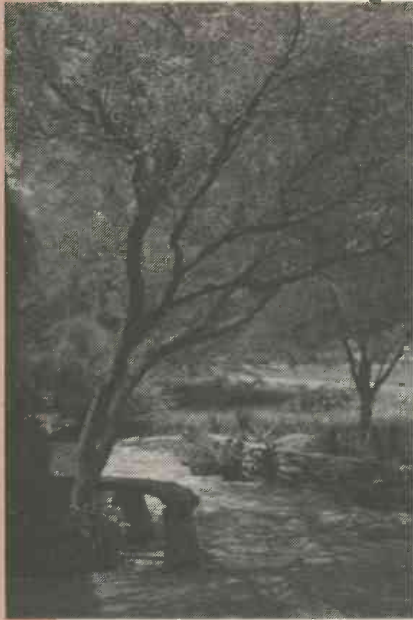


Gary Gaynor, Tucson Citizen



Gary Gaynor, Tucson Citizen





Charles Sacamano



Lynn Ketchum

### **The Green Scene Program on Forest Ecology and Land Management**

Taking care of the environment requires a knowledge of what it is and how it works. An award-winning curriculum developed specifically for students in grades four through eight does just that. *The Green Scene* is an environmental education curriculum designed to introduce environmental education concepts into the classroom while reinforcing basic skills.

The Green Scene program was developed by a team of curriculum specialists, scientists, naturalists and classroom teachers, under the auspices of The Wilderness Society, The University of Arizona School of Renewable Natural Resources, the U.S.D.A. Forest Service, and KUAT-TV public television. The team worked closely with classroom teachers to design and develop the lessons, and the unit was field tested in classrooms in six regions of the country. The unit has proven appeal and effectiveness in classrooms throughout the U.S., ranging from central-urban to rural schools, and was recognized by the National Environmental Education Foundation Clifford Pinchot Award in 1993.

Widely distributed nationwide, the curriculum unit includes six lessons with reproducible student activity sheets, a map, and a video cassette containing two programs, one an introduction to the entire curriculum, the other an interactive video for classroom use. The curriculum employs cooperative group work to explain forest ecology and wilderness. Students practice math skills, surveying techniques, writing and problem-solving as they learn about the natural world.

The program offers a balanced ecological approach to forests and forest-related industries, encouraging students to study forest management for both environmental and human needs. In the fifth lesson, students must decide what to do with a 10,000 acre parcel of land bequeathed to the school. The video provides an overview of the land and its resources, and shows expected effects of four management options: leasing the land for timber cutting; selling the land to a housing developer; leasing the land for continuous recreational use; or leaving it undeveloped as a wildlife habitat and scientific research site. Students divide into four teams, present their positions on the use of the land with the aid of video presentations, and study the short and long-term consequences of their decisions. They learn the concept of multiple use and begin to understand the complex debate surrounding land use decisions.

### **Chinle/Navajo Nation Land Resources Education Project**

The Department of Agricultural Education has joined in partnership with the Chinle Public School District on The Navajo Nation to integrate academic learning into vocational education. Vocational and academic teachers from the Chinle Public School District and area community colleges, faculty from the University of Arizona, and Native American professionals will develop and teach the curricula. The Native American professionals will also serve as mentors and cultural advisors for the participants, and Navajo graduates of the program will become future advisors and mentors.

The project is unique in that the instruction, skills and knowledge gained by the participants will be certifiable and will include Navajo cultural values and beliefs along with appropriate technology. The project is designed with strong Navajo professional and cultural input to encourage long-term community support and to provide natural resource and agricultural work experiences that are relevant to local and Navajo Nation needs. Students who participate in the program as part of their educational process will receive wages for their work.