

1998

Awards and Recognition, Iowa Academy of Science, 1998

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Recommended Citation

(1998) "Awards and Recognition, Iowa Academy of Science, 1998," *The Journal of the Iowa Academy of Science: JIAS*: Vol. 105: No. 4 , Article 7.

Available at: <http://scholarworks.uni.edu/jias/vol105/iss4/7>

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AWARDS AND RECOGNITION IOWA ACADEMY OF SCIENCE 1998

DISTINGUISHED FELLOW

Richard Arnold

Richard Arnold, a native of Creston, IA, with B.S. and Ph.D. degrees from Iowa State University and an M.S. degree from Cornell University, has been an outstanding soil scientist in both academic and governmental positions. He began his career as a soil scientist with the Soil Conservation Service where he worked on the mapping of Iowa soils. Throughout his distinguished career, he has been committed to the understanding, classification, and identification of soils in their natural state—out in the field. He acquired an outstanding reputation as a teacher of undergraduate and graduate courses in morphology, genesis, and classification of soils in his academic appointments at Cornell University and at the University of Guelph in Canada. His greatest and most lasting contribution to agricultural sciences in Iowa, nationally, and internationally has been in his subsequent two-decade career with the USDA where he has been the final arbiter of questions and issues raised about the classification and delineation of soils in the field. Currently Special Assistant to the Chief of Soil Science in the Natural Resources Conservation Service of the USDA, he has maintained a continued personal interest in the wise and enlightened use of farmland in Iowa.

DISTINGUISHED SERVICE AWARD

Paul Rider

Paul Rider, Drake University graduate with a Ph.D. in physical chemistry from Iowa State University, has been an effective member of the chemistry faculty at the University of Northern Iowa and an active member of the Iowa Academy of Science for nearly 30 years. The award is made in recognition of his exceptional contributions to the Academy over that period. In the seventies, Paul served at various times as chair of the AAAS Research Grants Committee, chair of the Finance Committee, chair of the Inorganic and Physical Chemistry Section, and Treasurer of the Academy. His involvement continued into the eighties with membership on the Panel on Controversial Issues—for which he was a frequent and articulate defender of the position of the scientific community—and the Recognition and Awards Committees. In 1988 he accepted the position of Executive Director of the IAS, a position he held through 1997. In that capacity he represented the Academy effectively throughout the state in dealings with academicians, government leaders, and the general public. Throughout his effective and responsible managing of Academy affairs as Executive Director in the nineties, he has been careful to insure that the Academy remains an organization of the membership.

DISTINGUISHED IOWA SCIENCE TEACHING AWARD

Charles Drewes

Charles Drewes, Professor of Zoology and Genetics at Iowa State University and winner of the Outstanding Teacher Award of ISU in 1991, has had a long and distinguished career as a successful scientist and teacher. An Augustana College (Sioux Falls) graduate with a Ph.D. in Zoology from Michigan State University, he has directed

the research of many graduate students and has published extensively in invertebrate physiology, neurobiology and toxicology. He has also taught undergraduate courses in neurobiology and physiology as well as a popular honors seminar in bioethics at Iowa State. His teaching has been marked throughout by creative innovations and hands-on work with the subject. From NSF-supported development of new experiments for physiology in the seventies to freely distributed study guides for teachers through Carolina Biological Company in the nineties, he has made his creative ideas available to a wide audience. More recently he has been involved in several activities to improve the teaching of science at the high school and community colleges. Over the past five summers he has served as the director of a HHMI supported grant which funds summer workshops for teachers at the Iowa Lakeside Laboratory. He is described by one of those teachers as "... smart, funny, enthusiastic and creative. Lucky are those who have had the delight of experiencing his teaching methods." In all of his efforts he has met the highest standards and has inspired all of us to become more involved in developing our teaching skills and our enthusiasm for science.

EXCELLENCE IN SCIENCE TEACHING AWARD MULTIPLE/GENERAL CATEGORY

Catherine M. Wilson

Dr. David McCalley describes Cathy as the consummate professional teacher. This is reflected in her commitment to high school science teaching and to professional service in science education. She provides a challenging curriculum for juniors and seniors in chemistry as well as an innovative physical science program for freshmen. The Forensics unit provides experiences in scientific inquiry through a simulated crime scenario. Students analyze hair, fabric, fibers, fingerprints, blood typing, and shoe residue to prepare for a grand jury presentation about a suspect. The investigation shows the important role that science plays in the real world and stresses that conclusions must be drawn on solid evidence. Cathy takes extra time with students helping before and after school. She states that her goal is to show students that science is a very attainable process that surrounds them everyday, and that it is useful and often necessary. She also wants to use science as a vehicle to expand their minds and make them think. Jeane Jones, Science Coordinator for Iowa City, wrote that Cathy "addresses the challenge of teaching multiple science disciplines with competence and energy."

Cathy's impact extends far beyond her own classroom. Her professional service includes past treasurer for the Iowa Science Teachers, facilitator for the PALS project working with elementary teachers to improve the science curriculum, a writer for CRISTAL to develop student-centered labs in chemistry, an instructor for Environmental Education and OUTLOOK, and an active member of the Scope, Sequence, and Coordination Project. Cathy has given numerous presentations at professional conferences and received the Sigma Xi Recognition Award for service to science education.

EXCELLENCE IN SCIENCE TEACHING AWARD EARTH SCIENCE CATEGORY

Kären Wignall

Joan Roberts, principal at North High School, describes Kären as an excellent teacher with the nurturing heart of a care-taker, a won-

derful ability to organize, plan, and create and the intellectual curiosity of a scientist. Her role is to link the classroom with the real world. Kären believes that a teacher must engage students in a variety of activities: conducting research, collecting and analyzing data, and understanding scientific concepts to understand local issues such as water quality. Her students have ownership of their learning as they monitor the weather through real time data from Weather Radio and the Internet and their own observations. Students create weather broadcasts which are shared with classmates who help evaluate the skill and knowledge of the presenters. They develop a better understanding of how difficult it is to forecast the weather within the fine line of accuracy the public demands.

Her professional contributions demonstrate a willingness to assume leadership roles. She is the current President of the Iowa Science Teachers, facilitator for the Datastreme Project helping other teachers incorporate real time weather data into activities in the classroom, a curriculum writer for the Des Moines schools, instructor for meteorology classes through Drake University, Science Bound Coordinator at North High, and has presented 7 times in the last 2 years at conferences from Phoenix to Toronto. Kären was awarded the Outstanding Earth Science Teacher for Iowa from the National Association of Geology Teachers and was a 1996 Tandy Technology Scholar.

EXCELLENCE IN SCIENCE TEACHING AWARD MIDDLE/JUNIOR HIGH CATEGORY

Margaret Sadeghpour-Kramer

Margaret is an energetic and innovative teacher with a passion for science. Her students have planted thousands of trees, cleaned up highways, adopted rain forests, turtles and whales, collected signatures on petitions to protect habitats and promoted ethanol use. Presently she has developed an interdisciplinary curriculum around Iowa Rivers using local stream studies, and she is assisting a group of students, the Trail Blazers, to develop a system of trails and native habitat gardens on school grounds from an old football practice field. If you were to walk into her classroom, you would see the "animal farm", a wide variety of models and ongoing experiments. She feels that students must feel ownership of their learning and that they are motivated by working on real problems. Her goal is to encourage independent learners who know how to look for answers and to take responsible action. Margaret's students know that even sixth graders can make a difference. She has received grants from GTE, US West, and the Carver Foundation to provide computers and technology access to her students as they share their Water Planet Project on the world wide web.

Margaret is active in environmental and science education groups and has a long history of presentations and publications at the National and Iowa Science Teachers Conferences, the Iowa Writing Project, and the Kaleidoscope Conference. Her voice is a welcome addition to many state committees such as teacher licensure and she has held leadership positions in the Elementary Science Section of the Iowa Academy of Science. Margaret spends summer and weekends involved in learning experiences from SEA Education at Woods Hole to the tropical rain forests of Belize and Ecuador. Most importantly to Margaret is the positive influence she has had on students, especially girls, who gain confidence in her class. Ann Meyer, a parent, stated that "In my daughter's view, the sky is the limit for her future as a student."

EXCELLENCE IN SCIENCE TEACHING AWARD ELEMENTARY CATEGORY

Julie Timmins

"Hands-on" is the concept that Julie says describes her classroom. Her electricity unit is a favorite with the students, and it is easy to see why. "Fellow scientists! You will be working to develop the electrical system of the FBI Building in Washington, D.C. All of our plans and tests must be kept secret. Spies are everywhere, trying to get out precious information. Do not let them win!" Thirteen levels of experiments encourage exploratory learning and mastery of circuit puzzles. Students are challenged to demonstrate their ability and many will spend time after school on the skills. Exposure to careers and safety lessons are incorporated as the students work at their own skill level to learn about the real world. Nancy Clawson, a fellow teacher, says that "Julie is a master at adapting to the various needs of the special students that are integrated into her room. Each student is on equal footing and non-English students relax instantly when they walk into her room as the emphasis on hands-on activities reduces the language barrier." Julie believes that all students should have a chance to succeed and uses learning logs, creative drama, and portfolio assessments to determine mastery of concepts.

Julie has been science coordinator for her building for 4 years and directs the local Invent Iowa program. She serves on district strategic planning and standards committees and has a long record of leadership in the Washington Education Association, as president for 3 terms and a member of the negotiating team for 9 years. John Sproule, principal at Lincoln, says that enthusiasm, cooperation, and leadership are characteristics often associated with Julie. "She loves what she does and it shows."

EXCELLENCE IN SCIENCE TEACHING AWARD LIFE SCIENCE CATEGORY

Vicki Manders

Vicki brings interest and variety into her many science classes. Active learning strategies are interspersed with more traditional learning as students write up their own experiments, incorporate problem solving into laboratory exercises, and complete projects such as plant kingdom collections which are judged by fellow faculty members. Model making is a technique often employed using paper, styrofoam, string, clay, wire, and food to produce visual representations of the atom, protozoans, mitosis and edible cells. Playing games such as Biology Bingo and Memory help students learn the many vocabulary terms in biology. Sarah Pinion, Andrew Superintendent, says that "students know exactly what they are learning in Mrs. Manders' classroom, developing a useful understanding of science and how it relates to everyday life." Students live up to the high expectations that she sets, motivating at-risk students to high levels of achievement. Vicki uses many different assessment strategies that allow for each child to demonstrate successful learning. "Always open to new ideas, Vicki has a talent for adapting ideas from workshops and inservices to her classroom," according to fellow teacher, Clayton Pederson.

Vicki has been involved in the Dimensions of Learning, where new techniques are learned and then practiced in the classroom. She is also an active member of the School Improvement Committee, presenting inservices to the faculty. Vicki has been selected by her former students to be included in *Who's Who Among American Teachers* and plans to continue to make science as meaningful and relevant to a changing world as possible.

**EXCELLENCE IN SCIENCE TEACHING AWARD
ELEMENTARY CATEGORY****Mary Jane Sullivan**

Parents line up to be chaperones for Mary Jane's annual environmental field trip to Springbrook Outdoor Learning Center. For two days students participate in activities that span the curriculum from poetry, writing, dissecting owl pellets, hiking, to designing t-shirts. The field trip is a culminating activity after a year of environmental topics to help students develop a sense of stewardship and an understanding of ecological concepts. Students are actively involved in park and city clean-ups, building bluebird houses, designing nature posters, and writing articles for the local newspaper. Recently the sixth graders designed and produced their own field guide for a local marsh and are working with second graders to make an outdoor learning center. Mary Jane incorporates many teaching strategies in her classroom in a mixture of science topics. Her room is decorated in the theme of the topic they are studying and students are often encouraged to design their own experiments. Donna Boots, a teaching colleague says that "Mary Jane works to bring science alive for her students. She sets high expectations for students, but aspires to no less in her own education."

Mary Jane is an active professional with many affiliations in science and environmental organizations. She is a frequent presenter and welcomes the chance to improve her teaching and science skills through summer continuing education classes. As a dedicated member of her district science team, she has worked to promote a hands-on emphasis that teachers successfully use. Mary Jane continues to volunteer for building assignments, serving on the technology and school improvement teams to create opportunities for children.

**EXCELLENCE IN SCIENCE TEACHING AWARD
PHYSICAL SCIENCE CATEGORY****Sara B. Coleman**

Sara believes that her most important purpose in the classroom is to create an environment that is positive, stimulating, and comfortable for everyone to learn. Because of that philosophy chemistry enrollment has doubled and other science classes have grown as the curriculum has changed with Sara's help. She is most proud of the long term project in the Chemistry in the Community class. Groups of students choose environmental topics from radon in downtown businesses and the school to local water and air quality. They brainstorm activities, contact resources, and learn how to research and use the Internet. The students scatter into the community to investigate, and Sara says that it is "truly organized mayhem." These students are not usually college-bound, but are increasingly signing up for the class because they like the challenge and want to be part of their community. Tom Fish, Norwalk principal says that Sara "has the ability to engage young people to pursue higher order thinking skills," and her teaching arsenal is full of cooperative learning, authentic assessments and lab activities.

Sara is an educational leader as the present Iowa Science Teachers newsletter editor, a Project WILD facilitator and an active member of the Prairie Network and the ISEA, serving on boards and negotiations. She has written several successful grants and received awards for classroom projects ranging from prairie reconstruction to calculator based data-gathering. Sara credits her background knowledge in constructivism, cooperative learning, and Science-Technology-Society to provide the tools to offer innovative science classes at Norwalk. As a life-long learner, Sara is a role model to her students.