

1986

The Iowa Science Teachers Fall Conference, 1986

Iowa Academy of Science

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The Iowa Science Teachers Fall Conference



October 30, 1986
Stouffer Five Seasons Hotel
350 First Avenue, N.E.
Cedar Rapids, Iowa

KEYNOTE SPEAKER

Carolyn Sumners
Director of Astronomy and Physics
Museum of Natural Science
Houston, Texas

DR. CAROLYN SUMNERS is Director of Astronomy and Physics for the Houston Museum of Natural Science. Her responsibilities include writing planetarium shows, operating the Museum's Brown Observatory, designing optics and solar energy demonstration programs, and developing astronomy programs for students of all ages from kindergarten children to Shuttle astronauts. Dr. Sumners is also co-director of the Informal Science Study at the University of Houston.

TOPIC: (luncheon presentation)
**The Science of Informal
Experiences**

—A collage of student conceptions and misconceptions created when applying science words to real world situations. Data have been gathered from pint-size philosophers on roller coasters, at playgrounds, during sports events, in toy stores, on Museum tours and watching planetarium shows. Share in the revelation that students are often more clever than we might expect and less scientifically literate than we would hope. These misconceptions lead to discrepant event magic demonstrations and curiosity-creating science activities for students of all ages.

SESSION I 9:00-9:50

- 1. Management of Chemical Hazards in the School Laboratory (7-12) Minnesota Room**
Presenter: David W. Drummond,
University of Iowa
Chemical hazards can be managed by substitution of less hazardous materials, protective equipment, control of quantities and safe removal of waste chemicals. The presentation will include specific examples of hazard analysis and control.
- 2. C3 - Cooperate, Communicate, and Compromise (Middle School) Buchanan Room**
Presenter: John Francis and Linda Sliefert,
Muscatine Community Schools
We will compare individual and cooperative group learning activities. Discussion will include strategies and application of group learning for middle school science classes.
- 3. Some Thoughts on Thinking in the Science Classroom (4-10) Nebraska Room**
Presenter: Alice Krueger,
Mississippi Bend AEA
Thoughts and ideas on how to incorporate higher order thinking skills in the science curriculum will be presented. Gifted and talented research will be applied to higher order thinking skills in science.
- 4. Adapting Apple Works to Chemistry (High School) Cedar Room**
Presenter: Mike Iverson,
Mason City High School
Use of the Apple for inventory control, managing laboratory data, grade management, reports and test generation.
- 5. Schol Energy Patrols (4-6) Iowa Room**
Presenter: Tom Fredericksen,
Davenport Community Schools
A creative way to generate interest in energy conservation utilizing active student involvement will be discussed.
- 6. A Wellness Fair for Biology (7-12) Johnson Room**
Presentors: Bill Dutton and Nancy Spalj,
Iowa City Community Schools
Hints and ideas on how to hold wellness fair as part of your Biology course.

7. **Toys in Space Workshop (4-9)** **Missouri Room**
Presenter: Carolyn Sumners,
Museum of Natural Science,
Houston, Texas

Ninety-one pictures tell a special story about science in space. For each photograph, there is at least one discovery to be made about how things work in weightlessness conditions. These pictures are the raw data. Test your observation skills as you study each toy in action. Compare your notes with answers from the experts. Give yourself one point for each correct response.

8. **The Magic of Acids, Bases and Indicators (4-6)** **Jones Room**
Presenter: Kelly Drum,
Davenport Community Schools

A "magic sign" will be used as an attention getting means of introducing students to experiences with acids, bases, and indicators! Several acid & base tests will also be included.

9. **Designing Primary Science Activities (K-6)** **Linn Room**
Presenter: Pat Shier,
Great River AEA

Ideas and activities to assist teachers in designing developmentally sound thinking skills in science and math.

SESSION II 10:00 - 10:50

1. **Demonstrations in Chemistry (High School)** **Minnesota Room**
Presentors: Mac Gore and Dave McClaughlin,
Iowa City Community Schools

Tried and tested demonstrations in chemistry guaranteed to generate interest and enthusiasm will be presented.

2. **Modular - Science/Technology/Society (7-12)** **Buchanan Room**
Presenter: Jon Harkness,
Wausau High School

Commercially available materials based on the nationally recognized science/technology/ society curriculum developed at Wausau (WI) West High School will be described.

3. **Deep Oil In Iowa: The Search for Giant Oil Fields (7-12) 11:00-11:30** **Nebraska Room**
Presenter: Raymond R. Anderson,
Iowa Geological Survey

The session will outline the search for black gold in Iowa.

- 4. Computer Interfacing for Science Experiments (7-12) Cedar Room**
Presenter: Jerry Aldrich,
Alden High School
Examples of interfaces that you can build which connect the laboratory to the computer will be described and demonstrated. Real time measurements can be made for time intervals, temperature, voltage, mass, velocity, acceleration, frequency, ect., with the Apple II series of computers.
- 5. School Yard Ecology (K-6) Iowa Room**
Presenter: Burke Thayer,
University of Iowa
Recreation Services Department
How to conduct Environmental Education in your backyard.
- 6. Public Relations and Your Science Program (K-12) Johnson Room**
Presentors: Dave Fagle, Marshalltown Schools
Roger Spratt, Ames Community Schools
Generating public support for your science program is important. This session will provide hints and ideas on how to publicize what you are doing.
- 7. Spaceflight Forces and Fears (7-10) Missouri Room**
Presenter: Carolyn Sumners,
Museum of National Science,
Houston, Texas
This begins with an introduction of amusement park rides and their relationship to the changing forces felt in spaceflight. Gravitational effects as well as the centripetal force designs of space colonies are explained in terms of student experiences. The emphasis then shifts to the physiological effects on riders. Pulse, blood pressure, and galvanic skin responses are all considered in relation to the fear-inducing stimuli.
- 8. Turning Kids On To Science With Competition (2-6) Jones Room**
Presentors: Dean Hartman, Grant Wood AEA
Pat Shier, Great River AEA
The science competition activities provide students with problem-solving opportunities. Examples of the events are foil boats, air powered car and marble roll. The competition can be school or area wide.
- 9. Science Activities for Grades 3 & 4 Linn Room**
Presenter: Kathy Geis, Dows School
Science activities guaranteed to generate interest and enthusiasm in your science program.

PREREGISTRATION FORM

Circle appropriate amounts. **AT THE CONFERENCE, REGISTRATION WILL BE \$10.00 HIGHER FOR PROFESSIONALS.**

	IAS Member	Nonmember	Student
*Advanced Registration	\$20.00	\$30.00	\$10.00
*Advanced Reg. plus New Member Dues (\$20.00)	—	\$30.00	—

*(includes noon buffet. Make checks payable to: **IOWA SCIENCE TEACHERS SECTION (ISTS)**)

PRIOR TO OCTOBER 17, 1986, please mail this form and pre-registration check to *Iowa Academy of Science, P.O. Box 868, Cedar Falls, IA 50613. (319/273-2021)*

PLEASE PRINT YOUR NAME BELOW FOR NAME BADGE.

Name _____ School _____

Home Address _____ City _____ Zip _____

SESSION III 1:00 - 1:50

- 1. Physics Demonstrations from the Physics Teacher Resource Agent Workshop (High School Physics) Minnesota Room**
Presenter: Sandra Walton,
Dubuque Senior High School

A collection of lecture techniques and demonstrations from "Acceleration to Yo-Yo's" that will help make Physics more interesting for teachers and students alike.
- 2. Geology Is (7-12) Buchanan Room**
Presenter: Dave Winnett,
Ofallen Township High School

Geology topics, ideas and activities will be discussed.
- 3. A Small Schools Symposium (7-12) Nebraska Room (double session)**
Presenter: Peggy Steffen,
High School

Problems and solutions unique to teaching secondary science in the small school will be discussed. This is a double session. The session will feature past winners of the Excellence in Science Teaching Awards.
- 4. Strategies for Teaching Science to the Gifted Students (5-9) (double session) Cedar Room**
Presentors: Joe Moore and Project Participants,
Keystone AEA

The units produced as a result of ESA Title II Grant will be presented. Strategies for developing exemplary units will be discussed and presented. This will be a double session.
- 5. "Outdoor Education Potpourri", (K-6) Iowa Room**
Presenter: Chuck Wester,
Mississippi Bend AEA

Participants will have the opportunity to experience a variety of 'hands on' activities. (Animal tracks, bird feeders, seed tapes, pioneer life)
- 6. The State Wide Disposal Plan for Hazardous Chemicals (7-12) Johnson Room**
Presenter: Bill Peterson,
Western Hills AEA

Plans for the collection and disposal of hazardous chemicals from school laboratories will be outlined.

7. **Manned Space Flights, Are They Necessary?**
(9-12) **Missouri Room**
 Presenter: Jerry Murphy,
 University of Iowa, Physics Dept.
 The controversy over manned versus unmanned space flights will be discussed.
8. **Test Tube Ice Cream or Door Chimes**
(4-6) **Jones Room**
 Presenter: Rebecca Andresen,
 Davenport Community Schools
 Activities designed to generate interest and curiosity in upper elementary science.
9. **Inquiry Activities in Life Science (1-3)** **Linn Room**
 Presenter: Dean Hartman,
 Grant Wood AEA
 Two primary units, butterflies and aquarium organisms, will be introduced. Each involves students in observing, recording data and forming predictions and conclusions.

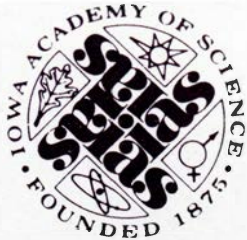
SESSION IV 2:00 - 2:50

1. **Physical Science Demonstration**
(Jr. High) **Minnesota Room**
 Presentors: Richard Fast and Lloyd Phillips,
 Knoxville Community Schools
 How to turn your junior high students on to science utilizing demonstrations in Chemistry and Physics.
2. **Supplemental Science Activities**
(4-9) **Buchanan Room**
 Presentors: George Magrane,
 Southern Prairie AEA
 Dean Hartman,
 Grant Wood AEA
 A proven teaching/learning cycle will be presented in several science activities suitable for students in grades 4-9. The computer will also be used to access a large data base of activities available to teachers of science.
3. **Small Schools Symposium**
(Continuation of double session) **Nebraska Room**
4. **Teaching Science to the Gifted**
(Continuation of double session) **Cedar Room**

5. **"Outdoor Education for the Handicapped"**
(K-12) **Iowa Room**
Presenter: Chuck Wester,
Mississippi Bend AEA
A slide presentation of successful projects and techniques for involving Special Education students in outdoor education activities.
6. **Teaching Contemporary Issues**
(7-12) **Johnson Room**
Presenter: Louis Stoneking,
Ottumwa High School
Incorporating contemporary issues into your science program.
7. **A.I.D.S. (7-12)** **Missouri Room**
Presenter: Al Wendt,
State Dept. of Health
Current research and problems will be discussed.
8. **Structures: an Economics Lesson (3-6)** **Jones Room**
Presenter: Candi Kilburg,
Center Point
How to turn E.S.S. Structures into an economics lesson.
9. **The "Working" Science, Curriculum Guide**
(K-6) **Linn Room**
Presenter: Norma Wallace,
Lake View Auburn
Organizational ideas that place the curriculum guide in the teachers' hands instead of on the teachers' shelves.

JUNIOR ACADEMY

There will be a program available for 7-12 students interested in Science Research. Contact Joe Moore (319/539-2401) or Lynn Glass (515/294-7006) for more information.



**The Iowa Science Teachers Section
of the**

**IOWA ACADEMY OF SCIENCE
University of Northern Iowa
Cedar Falls, IA 50614-0422**