

THE IOWA CHAUTAUQUA PROGRAM



**A Professional Development Program for Teachers:
A Collaborative Approach to
Science Education Reform**

Approved by the U.S. Department of Education for dissemination through the National Diffusion Network

PROMOTING THE TEACHING AND LEARNING OF SCIENCE IN THE CONTEXT OF HUMAN EXPERIENCE

The Iowa Chautauqua Program Presents:

- A new paradigm for professional development of K-12 science teachers
- Science teaching that is student-centered and problem/issue oriented
- Teacher to teacher networking of ideas and support
- A collaborative approach to science education reform
- Professional development designed to provide sustained support and meet local needs

The Successes of the Program Include:

- Notable changes in teachers:
 - an increase in subject matter competency
 - an increase in understanding and use of basic features of science
 - an increase in confidence for teaching science
 - an increase in ability to use constructivist practices
 - an increase in ability to adapt curriculum materials to an STS teaching approach
- Measurable improvements in student performance:
 - an increase in the mastery of science concepts
 - an increase in positive attitudes regarding the study of science and science careers
 - an increase in the ability to apply science concepts and processes in their own lives
 - an increase in curiosity
 - an increase in understanding of the nature of science

What is The Iowa Chautauqua Program ?

Program Description

Schools across the nation are now poised to make substantial changes in science education. National reform efforts such as America 2000, Project 2061: Science for All Americans, Scope Sequence & Coordination, and The National Standards Project are challenging science educators to examine their teaching practices in order to make them more relevant for students. Educators, parents, business leaders, government officials, and the general public are concerned with creating new standards for excellence. Reform means more than improving the status quo. It is time to reconsider the importance of professional development and the role it plays in systemic reform.

Iowa has been dealing with this challenge for the past ten years. The Iowa Chautauqua Program has emerged as one of the most promising models for restructuring professional development. The Iowa Chautauqua Program (ICP) serves as a model for professional development of science teachers which can be customized to meet local needs. The program was developed at the University of Iowa, Science Education Center with support from the Iowa Utility Association, the National Science Foundation, and local school districts. The model has been designed using current research on constructivist teaching and teacher change. Teachers and students are at the center of the change process. Teachers are encouraged to be leaders in school reform. The primary concern is for creating science programs which are connected to the real world issues and problems. The program promotes a Science, Technology, Society (STS) approach which focuses on the teaching and learning of science in the context of human experience.

Teachers are supported for an entire year as they make changes in their classrooms. Schemes for assessing both student and teacher growth are part of the ICP plan. The challenges involve helping teachers use existing materials in an issue oriented context and broadening teacher understanding of assessment. Collaboration and mentoring are part of the Iowa Chautauqua Program. Teachers, parents, administrators, and community members work together to realize the needed changes.

Features of the Iowa Chautauqua Model

- Two week summer leadership conference
- Three week summer workshops for K-12 science teachers
- Three day follow-up fall short course
- Interim communication and support during teaching trials
- Three day follow-up spring short course

The future of American education will depend solely on how our thinking related to inservice education evolves. Most inservice experiences fall short in terms of providing the type of support needed to create permanent change.

*Susan M. Blunck
Associate Director*

The Iowa Chautauqua Model

CHAUTAUQUA LEADERSHIP CONFERENCE

LEAD TEACHERS MEET TO:

- PLAN SUMMER AND ACADEMIC YEAR WORKSHOPS
- ENHANCE INSTRUCTIONAL STRATEGIES AND LEADERSHIP SKILLS
- REFINE ASSESSMENT STRATEGIES

3 WEEK SUMMER WORKSHOPS

3-4 LEAD TEACHERS + UNIVERSITY STAFF + SCIENTISTS WORK WITH TEACHERS IN LOCAL/REGIONAL WORKSHOP SETTINGS

Teachers are introduced to constructivist teaching in a Science, Technology, Society (STS) context. Teachers:

- Participate in activities and field experiences that integrate science concepts and principles from all four disciplines
- Make connections between science, technology, and society in the context of human experience
- Use local questions/problems/issues such as air quality, water quality, land use and management as the context for conceptual development
- Reflect and create a 5 day teaching unit

5 DAY CLASSROOM TEACHING TRIAL

Teachers involved in summer workshops teach and assess a 5 day unit using constructivist practices in an STS context

ACADEMIC YEAR WORKSHOP SERIES

3-4 LEAD TEACHERS + UNIVERSITY STAFF + SCIENTISTS WORK WITH SUMMER TEACHERS + NEW TEACHERS

Fall Short Course

20 hour Instructional Block
Activities include:

- Reviewing problems with traditional view of science and science teaching
- Outlining the essence of constructivist teaching and learning
- Defining techniques for developing teaching modules and assessing their effectiveness
- Selecting a tentative topic
- Practicing specific assessment tools in multiple domains
- Analyzing current practices in relation to constructivist practices

Interim Project

Three To Six Month Interim Project
Activities include:

- Developing a Constructivist Module for a minimum of twenty days of instruction
- Administering pretests in multiple domains
- Teaching the module
- Reflecting on constructivist practices
- Developing a variety of authentic assessment strategies
- Communicating with regional staff, lead teachers, and central Chautauqua staff

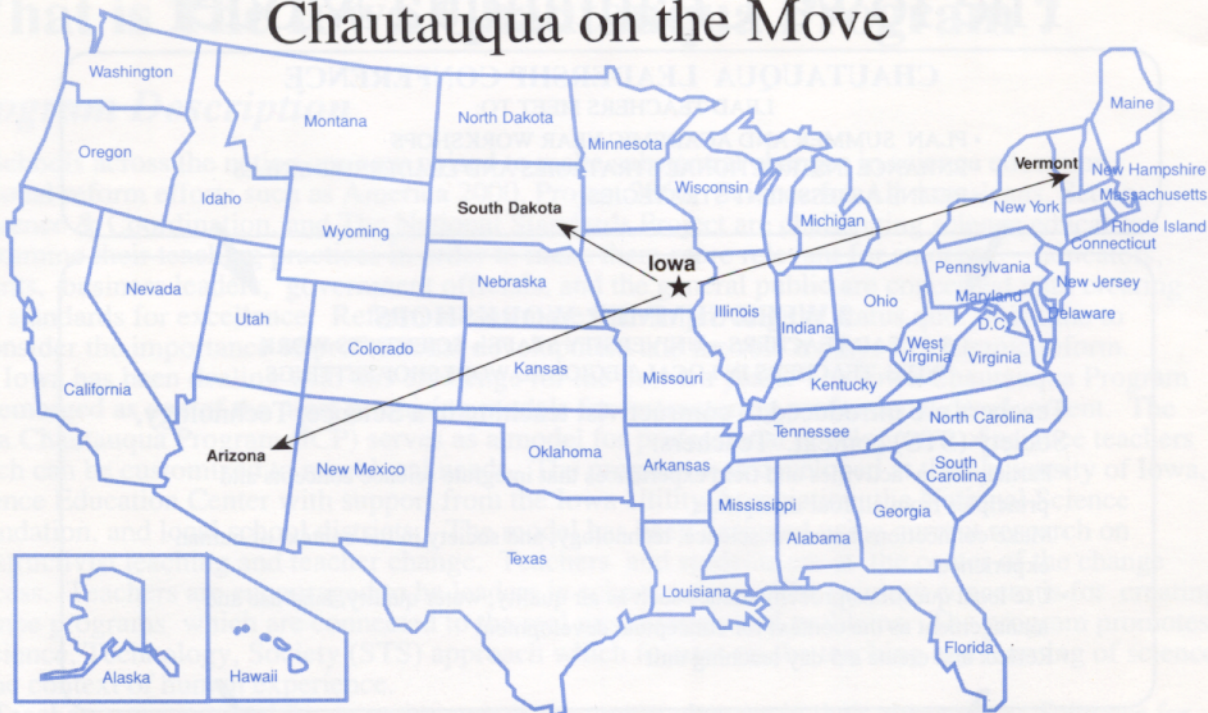
Spring Short Course

20 hour Instructional Block
Activities include:

- Analyzing constructivist experiences in grade level groups
- Discussing assessment results
- Reflecting and analyzing teaching changes related to constructivist practices
- Considering new information concerning constructivist practices
- Planning next steps for expanding practice
- Planning for involvement in professional meetings and local school transformations

(Yager and Blunck, 1993)

Chautauqua on the Move



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THE IOWA CHAUTAUQUA PROGRAM NATIONAL DIFFUSION NETWORK PROJECT

The Iowa Chautauqua Program (ICP) has been endorsed by the National Diffusion Network (NDN) as a model in-service program. In Iowa, the program is supported by the Iowa Utility Association and the National Science Foundation who provide ongoing support for Iowa teachers in grades K-12 as they develop and create Science, Technology, Society (STS) teaching strategies to use in their classrooms. The program was initiated in 1983. The ICP is head-quartered at the University of Iowa, Science Education Center.

The goal of the ICP is to assist Iowa teachers in the development of STS teaching and assessment strategies designed to produce students who are scientifically and technologically literate. The model is unique in that it provides the teachers with ongoing support as they make changes in their science teaching. The improvement efforts already underway in many Iowa schools are concerned with providing appropriate science for ALL students. Every student must become capable and confident in making informed decisions as future citizens on issues that involve science and technology in the societal context.

The STS approach is being used as a vehicle in the development of K-12 school science programs across the nation. Textbooks and curricular materials are using the STS themes at increasing rates. Many schools already have elements of STS within their science programs. The major change involves implementing student-centered teaching practices.

The National Science Teachers Association (NSTA) has developed a Position Statement concerning science education for the 90s which captures the essence of the major improvement efforts being stimulated by Iowa teachers who have participated in the ICP. The statement proclaims:

NSTA views Science, Technology, Society (STS) as the teaching and learning of science in the context of human experience. It represents an appropriate science education context for all learners. The emerging research is clear in illustrating learning science in an STS context results in students with more sophisticated concept mastery and ability to use process skills. All students improve in terms of creativity skills, attitude toward science, use of science concepts and processes in their daily lives and in responsible decision making.

This packet contains information on how teachers and students are changing through experience in the Iowa Chautauqua Program and STS approach. This information is intended to stimulate an interest in STS and the Iowa Chautauqua Model as a way of improving science education.

It is important that we strive to involve all stake-holders in important educational transformations.

As you realize, one of the biggest challenges we face today in education is transforming our school science programs into experiences that are meaningful for ALL students. We must be concerned with helping students understand real-world problems that relate to science and technology in their lives. Science when taught in the context of human experience takes on a new meaning for students. We look forward to the possibility of working with you to improve science education in your area.

For additional information on the Iowa Chautauqua Program, please contact either:
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