MEMORANDUM

To: Board of Regents

From: Board Office

Subject: Award of Eisenhower Professional Development Grants

Date: January 7, 2002

Recommended Action: Approve allocation of $598,846 of federal funds to support seven projects that provide professional development opportunities for K-12 teachers.

Administered by Board Office

- The Board of Regents, Board Office was designated as the state agency for higher education in Iowa to oversee the federally funded program that provides funds to institutions of higher education for the professional development of K-12 teachers, primarily in the areas of mathematics and science.

Collaborate with Iowa Department of Education

- In consultation with the Iowa Department of Education, the Board Office staff prepared a Request for Proposals that supported initiatives within the state for mathematics and science.
- Ten proposals were received, requesting $842,733 in funding.

Advisory Panel

- A panel of educators representing Regent universities, independent colleges and universities, community colleges, elementary and secondary schools, and consultants in the Iowa Department of Education reviewed the proposals. While all ten proposals were worthy of funding, there were only enough funds for seven projects.

Strategic Plan: The Eisenhower Professional Development Program relates to the Board's Strategic Plan Key Result Areas (KRA) 2 and 4:

- KRA 2 - access to educational, research, and services programs within the Regent universities
- KRA 4 - stewardship of state, federal, and private resources

For almost 20 years, the Eisenhower Professional Development Program and its predecessor programs have been an interface for Regent universities, independent colleges and universities, and other professional educational organizations (Strategy 4.4.2.0).

Background:

Emphasis on Mathematics and Science

In the early 1980's, the Board of Regents Board Office, was designated as the state agency for higher education responsible for distributing funds for K-12 teacher professional development in many disciplines. Grants must be provided on a competitive basis. In 1989, the program was refocused to provide funds for mathematics and science, areas of critical need identified in several national reports. By 1995, funds were again to be made available to other disciplines, but spending on mathematics and science were to be maintained at a particular level. In Iowa, language arts was identified as the third critical area for professional development when additional funds became available. Project developers in Iowa responded to the need and added language arts as a third ingredient that could be integrated into many projects.

Request for Proposals

The Board Office develops a Request for Proposals (RFP) for the program each year in consultation with the mathematics and science coordinators at the Iowa Department of Education and a panel of educators assembled by the Board Office staff. Guidelines and goals for the program are outlined in the RFP, which is mailed to presidents, grant officers, and other interested individuals at all Regent universities, independent colleges and universities, community colleges, and non-profit organizations of demonstrated effectiveness in providing professional development for educators.

Reviewed by an Advisory Panel

Proposals received are reviewed by an advisory panel and rank ordered for funding. During its annual evaluation meeting, the panel of educators makes recommendations to the Board of Regents concerning the projects that it feels will meet the state's goals for the use of the federal funds provided for professional development for K-12 teachers.

Analysis:

Funds Available Total $598,846

In the competition for federal FY 2001 funds, ten proposals were received and reviewed by the advisory panel. Total requested funding was $842,733. Total available funding was $598,846 ($527,325 from FY 2001 funds and $71,521 in unallocated FY 2000 funds).

Balancing the Budget

The advisory panel recommends funding seven projects. Abstracts of the seven projects are included as an attachment to this memorandum. Total funds requested by these seven projects totaled $629,466. To present a balanced budget, the panel recommended that funding requested in the proposals be reduced to balance with available funding.

Recommendations The following projects are recommended for funding:

University/College Project	Project Director(s)	Total Funding for Project	Requested Eisenhower Funding	Recommended Eisenhower Funding
Iowa State University Staff Development Leadership Teams to Promote Science and Mathematics Reform through Implementation of the National Standards (2002-2003)	Alejandro Andreotti	$ 152,992	$ 89,954	$ 89,954
Loras College Teaching and Learning Mathematics: A problem-Solving Approach	Daniel Willis and Christina Nugent	$ 137,484	$ 89,910	$ 89,910
University of Iowa Inclusion: Science and Special Education III (ISSE III)	Edward Pizzini	$ 128,849	$ 89,907	$ 81,817
University of Northern Iowa Teaming Effectively Develops Integration - Plus III (TEDI III)	Carl Bollwinkel	$ 233,550	$ 90,000	$ 78,395
University of Northern Iowa Retaining and Recruiting Teachers Engaged in Advancing Mathematics and Science (R2TEAMS)	Larry Leutzinger and Joan Duea	$ 128,800	$ 89,740	$ 86,591
University of Northern Iowa Inclusive Science Instruction	Greg Stefanich	$ 179,193	$ 90,000	$ 82,224
University of Northern Iowa Completion and Dissemination of BIOMES and GEOMES Curricular Materials	Jody Stone	$ 89,955	$ 89,955	$ 89,955
Totals		$1,050,823	$629,466	$598,846

Performance Indicators:

Action Steps 2.2.1.2 and 2.2.1.3

The Eisenhower Professional Development Program contributes to the Board's and institutions' attainment of Action Steps 2.2.1.2 (collaborating with other agencies to offer educational opportunities), and 2.2.1.3 (increasing distance education enrollments). Projects currently underway and recommended for funding at this time rely on use of the Iowa Communication Network and the Internet for dissemination of information about the project. The Iowa model of the Board of Regents and Department of Education cooperating for a seamless Eisenhower program within the state has been recognized by federal officials as an ideal with which other states struggle.

Action Step 2.2.2.6 — The Eisenhower Program contributes to institutions' abilities to provide access to appropriate research and services (Action Step 2.2.2.6). The goal of the program is to reach teachers in all parts of the state. The Board Office staff responsible for the program continually seek to identify underserved areas of the state and encourage proposals that reach teachers in those areas.

Strategy 4.4.2.0 and Action Step 4.4.2.1 — The Eisenhower Program is one of the programs available through the Board of Regents to attain cooperation and collaboration with independent colleges and universities and non-profit organizations of demonstrated effectiveness in providing professional development for K-12 teachers (Strategy 4.4.2.0 and Action Step 4.4.2.1).

Action Step 4.4.2.3 — In its federally mandated nature, the Eisenhower Program meets Action Step 4.4.2.3 as a Board level opportunity for partnership with other sectors of education. The competition is open to post-secondary education institutions. Furthermore, the advisory panel includes representatives from all sectors of education within the state.

Action Step 4.4.2.4 — Although not currently meeting Action Step 4.4.2.4 (collaboration of the special schools with other agencies), the Eisenhower Program included educators from both Iowa Braille and Sight Saving School and the Iowa School for the Deaf as partner schools during the 2000-2001 school year. An ISU project from the mid-1990s in which IBSSS participated featured adaptations for visually challenged students; the video that resulted from this project continues to be requested by others around the nation.

Richard P. Tiegs

Approved: Robert J. Barak

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Project Abstracts

Project: **Staff Development Leadership Teams to Promote Science and Mathematics Reform Through Implementation of the National Standards (2002-2003)**
Project Director: Alejandro Andreotti, Assistant Professor of Curriculum and Instruction
Institution: Iowa State University
Eisenhower Funding Request: $89,954
Recommended Funding: $89,954
Funding Pending from Other Sources: $63,038

This proposal requests funding to support a two-week workshop in collaboration with AEA 12 at Western Hills. The workshop will focus on developing leadership teams who are knowledgeable about the national science and mathematics standards and who will lead mathematics and science reform in their districts. Participating teams will learn about the standards, examples of standards-consistent instruction and assessment, equity issues in science and mathematics instruction, cross-curricular (math, science, literacy) teaching approaches, effective use of technology for learning, and skills for effective leadership for school reform. Participants will conduct staff development in-services in the AEA 12 and will implement standards-consistent changes in their own teaching. They will also conduct a Science and Math Family night to inform parents about standards-consistent learning and teaching. The short- and long-term influence of the project will be assessed through the use of questionnaires and follow-up interviews with participants.

Project: **Teaching and Learning Mathematics: A Problem-Solving Approach**
Project Directors: Dan Willis, Associate Professor of Mathematics and Computer Science; Christina Nugent, Adjunct Faculty in Education
Institution: Loras College
Eisenhower Funding Request: $89,910
Recommended Funding: $89,910
Funding Pending from Other Sources: $47,574

Loras College plans to offer an institute on math education during the summer of 2002, with follow-up during the 2002-2003 school year, and dissemination during the spring of 2003. The institute, the third in a series of Loras College Institutes in Education, will be open to kindergarten through sixth grade teachers from the Dubuque Community Schools as well as the Dubuque Holy Family Catholic School system. For maximum impact, we will recruit ten teams: one from each participating school, with three teachers on a team. School administrators will also be engaged, but on a more limited basis. Each team will develop a Japanese-style "lesson study" process (a collaborative form of "action research") that makes sense for their school.

The institute will begin in June with a three-day workshop on math content and standards, focused on the skills and knowledge needed by elementary teachers. Workshop participants will be asked to identify lessons and topics that proved especially troublesome during the previous year.

The NCTM *Principles and Standards for School Mathematics* will be presented and discussed. Particular emphasis will be on the Problem-Solving Process Standard as it relates to the development of both student understanding of content and teacher understanding of pedagogy. Each participant will be given a copy of G. Polya's classic book on problem-solving, *How to Solve It,* for inspiration and ideas.

The primary textbook for the institute is *The Teaching Gap,* by Stigler and Hiebert. This book will be read, studied, and discussed in depth by institute participants over the summer. During the month of July, questions and ideas will be shared through the Loras College Blackboard courseware system, and each participant will prepare a lesson to present to actual students during a three-day follow-up workshop in August.

During the August workshop, teachers will focus on what quality math instruction looks like, and develop a process of Japanese-style lesson study that makes sense for their school. Teachers will use journals to record questions and issues during the development of lessons, and present lessons to actual students that will be analyzed by the group. Teachers will be encouraged to videotape lessons to facilitate communication.

Qualitative and quantitative assessments will be used to monitor the progress of teachers in the program. In addition, each participating team will develop an assessment plan to monitor the progress of the students in their school.

During the 2002-2003 school year, participants will meet once a week with the colleagues in their school for a ninety-minute period of lesson study. During that year, we will meet for four half-day sessions with the workshop participants (twice in the Fall and twice in the Spring) to assist with their development of the lesson study process. In addition, time has been set aside during district in-service days (in both districts) for workshop participants to educate other elementary teachers in the area.

Late in the spring of 2003, the lessons that have been "polished" during the year will be shared at a Lesson Study Fair on the campus of Loras College. Around the same time, participating teachers will meet with us to reflect on the project.

Project results will be disseminated regionally and nationally over the Web and through NCTM meetings and publications by the workshop organizers and participants. If the project is successful, it may serve as a model for a school-based staff development process that could benefit all teachers in the area.

Project: **Inclusion: Science and Special Education III (ISSE III)**
Project Director: Edward Pizzini, Professor of Science Education
Institution: University of Iowa
Eisenhower Funding Request: $89,907
Recommended Funding: $81,817
Funding Pending from Other Sources: $39,942

Project ISSE-III (Inclusion: Science and Special Education) is a collaborative effort involving Grant Wood AEA and the Alburnett/Central City, Cedar Rapids, and Iowa City Community School Districts with the University of Iowa and NCREL/MSC. Utilizing a "Trainer of Trainers" model for professional development, the purpose of this project is: 1) to inform education and

special education teachers of the benefits to students and teachers of "inclusion" through collaboration, 2) to re-frame the standards in science and mathematics (that is, standards-based reforms as effective classroom practice) that can benefit **ALL** students, 3) to in-service large numbers of general education and special education teachers in appropriate ways for inclusive teaching/learning of students with disabilities, 4) to provide teachers with the knowledge to take a leadership role in the development/implementation of curricula and instructional strategies so as to make adaptations and accommodations for the diverse learning, 5) to provide time for discussion, planning, development and reflection to promote "best" practices for students with disabilities. **The primary objective is to make standards-based science and mathematics education accessible to disabled students and thus increase their knowledge, interest, and attitude in these disciplines in the general education classroom. The foci are on: 1) curriculum restructuring, 2) appropriate multi-model instructional strategies promoting "best" practices for inclusion, 3) staff development using a "Trainer of Trainers" approach, and 4) promoting inclusion through collaboration to enhance teaching/learning of ALL students by confronting the barriers that exist.** Three District Collaboration Leadership Teams and one Teacher Facilitator team will be selected to serve as participants. The Teacher Facilitators will serve as "Trainers of Trainers", along with their LEA supervisors/coordinators and the AEA consultants, providing a cadre of professionals (general education and special education teachers) who continue to be utilized. The intensive Summer Institute will emphasize theory, practice, and feedback while implementation of the standards is carried out in the "best" interest of ALL students. Curricular restructuring, instructional "best" practices, staff development, and assessment to facilitate success in the included classroom will be themes on which participants can build for implementation during the Fall semester. The goal will be to develop curriculum modules with appropriate multi-model instructional strategies that promote "true" collaboration between the general education and special education teachers. In the Spring, emphasis will be on providing in-service to 20-25 peers within each school district, totaling 70. Demonstration sessions, on-site sessions, mentoring, focus groups, etc., along with the use of the Web CT will provide a network of support and a forum for sharing "what works". A Handbook detailing the outcomes of the project will be available statewide to promote "best" practices. The project will directly impact 103 teachers in long-term, continuous in-service within the three participating LEAs and hundreds in awareness activities across the state via the ICN, Web CT, and the Resource Handbook.

Project: **Teaming Effectively Develops Integration - Plus III (TEDI III)**
Project Director: Carl Bollwinkel, Professor of Teaching and Science Education
Institution: University of Northern Iowa
Eisenhower Funding Request: $90,000
Recommended Funding: $78,395
Funding Pending from Other Sources: $143,550

This proposal will train K- 1 2 leadership teams who, in turn, facilitate workshops to train other educator teams K- 1 2. The use of an environmental theme allows the integration of national standards of all disciplines as they relate to new technology, student achievement/instructional strategies, and school improvement initiatives.

The study of an environmental issue requires a solid foundation in science content. The analysis of an issue provides an ideal opportunity to broadly integrate mathematics and language arts. This foundation prepares students in becoming lifelong learners.

The Environmental Issues Instruction **(eii)** staff (Bollwinkel, Bonnett, and Cochran) will train a cadre of 15 teacher/leaders in a spring and summer program. These teacher/leaders will conduct in-depth training for approximately 90 additional teachers (30 subject to funding by another source) under the direction of the **eii** staff. These teacher/leaders will be available for leadership activities in their home district, AEAS, LEAS, as well as ISTS, NCTM, and other curriculum organizations.

The cadre of teacher/leaders will include elementary through high school teachers and will link ten AEAs in a cooperative network. These teams support the AEA compliance with the Iowa School Improvement Network.

Teaming of workshop participants ranges from two educators to several from different disciplines. Mentoring also occurs as teachers involve others in their buildings. Another component of teaming involves last semester pre-service educators (student teachers) in a workshop with their supervising teacher. This will provide practical opportunities of time to plan, organize, and develop the integration of curriculum with seasoned educators. The application phase allows utilization with students in a classroom.

The focus topic, ***Forests in a Changing Climate,*** contains content and connections to all disciplines and grade levels. Elementary, middle school, and pre-service teams will be encouraged. However, teams of educators from high schools will be given registration priority.

In conjunction with the in-depth training, teachers will be expected to **apply** in their own teaching what they have experienced and developed. During application, teachers will be supported by the **eii** directors, teacher/leaders, and AEA coordinators. Directors and teacher/leaders will have a home web site **(www.uni.edu/cece/eii)** and e-mail communication.

Student achievement and instructional strategies will be assessed in light of recently established **national standards** (NCTM, NSES, and NCTE.)

Project: **Retaining and Recruiting Teachers Engaged in Advancing Mathematics and Science (R2TEAMS)**
Project Directors: Larry Leutzinger, Professor of Mathematics; Joan Duea, Professor Emerita of Mathematics
Institution: University of Northern Iowa
Eisenhower Funding Request: $89,740
Recommended Funding: $86,591
Funding Pending from Other Sources: $39,060

The Iowa Mathematics and Science Coalition (IMSC), in collaboration with AEA 1, AEA 2, AEA 6, AEA 7, and the Waterloo Community School District will identify and support 60 K-12 mathematics and science teacher/leaders, five administrators, and eight mathematics/science

consultants. The Retaining and Recruiting Teachers Engaged in Advancing Mathematics and Science (R2TEAMS) project members will participate in professional development focusing on mathematics and science standards and assessment, instructional strategies, and leadership. During the academic year, the participants will create district support teams to assist in facilitating the implementation of Comprehensive School Improvement Plans (CSIP). These teams of teacher/leaders will prepare professional development modules focusing on best practices for use in their districts. They will build collaborative relationships with other professionals and community leaders.

Project: **Inclusive Science Instruction**
Project Director: Greg Stefanich, Professor of Curriculum and Instruction
Institution: University of Northern Iowa
Eisenhower Funding Request: $90,000
Recommended Funding: $82,224
Funding Pending from Other Sources: $89,193

This project is a professional development project for teachers and administrators to improve their knowledge and familiarity with strategies and resources for the teaching science to students with disabilities. The project is an effort to enhance equity for all students in science. The primary mode of delivery will be a class taught on the Iowa Communication Network from June 10-25 with follow-up during the 2002-2003 school year at districts participating in the project. Participants who wish to receive credit will be eligible for three hours of graduate credit from the University of Northern Iowa.

As will be evidenced in the proposal, there is a significant need to inform all Iowa teachers about strategies for addressing the needs of students with disabilities in specific subjects. This project will educate professionals providing services to students with disabilities about effective resources, and teaching/assessment strategies in science. It is an area where there is limited expertise. In addition, it will explore the feasibility of a delivery system (the ICN) that offers potential to educate a large number of persons in a relatively short period of time.

Model lesson sequences will represent different hands-on strategies for teaching science with a description of general and specific accommodations for each of ten disability areas. Suggestions will be shared and discussed with the participants. Methods of instructional delivery include:

1. Explicit Teaching (Rosenshine) and Events of Instruction (Gagne)
2. Mastery Teaching (Hunter)
3. Inquiry Teaching (Suchman), Socratic Methods (Arons), Induction (Taba)
4. Science Learning Cycle (Karplus), BSCS Learning Cycle (Bybee)
5. Exploratory Learning (Morrison)

Each instructional sequence will contain content review relevant to the discipline, alternative assessment strategies, including both performance assessments and portfolio development. Following each sequence, participants will have opportunities to engage in discussions relating

to the accommodation of instruction to fit the learning needs of all students within the framework of a regular classroom.

Information in the areas of assistive technologies, teacher education, research on effective teaching, methods of instruction, materials and programs, evaluation and assessment, and educational organizations and agencies will be shared with participants. The proposed effort will address responsibilities of educators contained in legislative mandates (i.e. Disabilities Education Act, 1973; Americans with Disabilities Act, 1989, Individuals with Disabilities Education Act, 1997), inequities reflected in the literature concerning opportunities in science for students with disabilities, and informational needs of teachers and teacher educators in making science instruction responsive to students with disabilities.

Project: **Completion and Dissemination of** BIOMES **and** GEOMES **Curricular Materials**
Project Director: Jody Stone, Associate Professor of Teaching and Science Education
Institution: University of Northern Iowa
Eisenhower Funding Request: $89,955
Recommended Funding: $89,955
Funding Pending from Other Sources: $0

Emphasis on the new *Science Standards and Benchmarks* stress the development of inquiry and problem solving skills while including current science-related societal issues. In addition, efforts must be made to develop activity-based materials that can be successfully used by both seasoned science teachers as well as science teachers teaching out of their area of expertise. The traditional textbook approach is not sufficient in addressing all these needs. In short, there is a great need for innovative curricular materials for use in high school science classes and for teachers specifically trained to teach using strategies compatible with *the Science Standards and Benchmarks.*

Exemplary curricular materials developed at the University of Northern Iowa have successfully addressed these needs in the fields of chemistry and physics through the *CRISTAL and PRISMS* materials. Both these programs have become widely used throughout the United States, while having their beginnings with Eisenhower funding in Iowa. This proposal is for the completion of similar programs for high school earth science and biology.

BIOMES (Biology Instructional Opportunities for Motivating Every Student) and *GEOMES* (Geoscience Education for Motivating Every Student) are high school curriculum materials designed to increase the number of quality laboratory experiences and real-life connections carried out and studied in high school biology and earth science classrooms. These programs are designed to provide learning activities aimed at stimulating the development of reasoning/problem-solving skills while incorporating the *National Science Standards and Benchmarks.* The intended audience is high school earth science and biology teachers and the students enrolled in their classes.

State Eisenhower funding has already supported the initial development and field testing of the *BIOMES and GEOMES* curricular materials. To date, 46 *BIOMES* activities/laboratories and 42 GEOMES activities/laboratories have been written. Teams of outstanding Iowa biology and earth science teachers, working with university biology and earth science professors and

science educators, developed the materials. The funding requested in this grant would allow for the completion of the writing and field testing of both projects. An excellent writing team has been assembled and already proven their talent and creativity. In addition, all team members have expressed a strong desire to complete the project, including being fully involved in the field-testing phase. Each team member is currently piloting the materials (without funding) and is incorporating the materials and accompanying teaching strategies into their classrooms. Approximately 30 to 40 additional activities are needed to complete each of the programs. Eisenhower funding from this grant would support this final writing phase.