

Highlights from Apr 48 Educ Comm Mtng + Collins

present: Diane Ebert-May, Bruce Hayden, Trish Morse, Laura Henneke, Patly Spott + two others

"NSF is very interested in integrating science and education and LTER could show greater community how to do it!" - Trish Morse

GOAL - establishing long-term relationships with schools in community surrounding LTERs, OBSFs, (others?) to integrate science with education

Get copy of National Science Education standards - goal is to assist the Nation in meeting these standards

See World Wide Web - National Academy Press www.nas.edu/readingroom/books/nse

- IDEOLOGY-

- Reform science education in classrooms kindergarten through high school so students are benefiting from inquiry-based science

- NSF will provide supplemental funding for a comprehensive, long-term science/education program involving LTER sites (need at least one interested PI for a site to be truly involved), a science teacher-educator (need someone from the site's university to communicate between education community and LTER site), and a local teacher.

- School LTER sites, at which students do collect data, could be a part of this effort. This depends on teachers - how they want to incorporate LTER into their programs. If they learn how to teach inquiry-based science and decide they want to incorporate LTER into their program and their schoolyards, then on-site data collection is a possibility.

MOST IMPORTANT ASPECT OF EFFORT IS REFORMING SCIENCE EDUCATION IN THE CLASSROOM. LTER CAN PROVIDE STRUCTURE AND MODEL FOR THIS REFORM.

When children are doing inquiry based science:

- They view themselves as scientists in the process of learning
- They accept an invitation to learn and engage
- They plan and carry out investigations
- They communicate using a variety of methods

RESULT: they learn how to critique and observe. They raise questions

Students Must

- See how scientists work and see themselves as scientists
- Contribute in some way to an authentic research question
- Work in collaborative groups
- See technology used in context - need to incorporate technology and show how it is used instead of just flashing the big equipment at them
- Explore and develop their own age-appropriate research

NSF is very excited about Student and Scientists Partnerships, which demonstrate "Science as scientists do it"

- Opportunity for all students
- Utilizing the most up-to-date research technologies
- The Scientist as a recognized expert in area of investigation
- Inquiry is needed in classroom.
- Called for in the National Science Education Standards

Examples of Student and Scientist Partnerships:

- Human Genome Project
- GLOBE
- GREEN

Student/Scientist partnerships:

- Depend on a serious collaboration between scientists and students AND TEACHERS! See below
- Engage students in research of real value to scientists - data collection of course
- Benefit both science and education

- ACTION ITEMS -

- Recruit LTER Scientists and Educators from surrounding community
- Must relate value to scientists - don't get scientists that are not interested, that are only into it for the money, or who are not going to go out and seek more money elsewhere
 - Gather intellectuals from other projects and institutions to table at first seminar so we can learn from them and not have to re-invent the wheel.
 - Many new grants available in support of instructional materials - leverage NSF brand-name to get other money available to students
 - Must show students how science is done at all levels -- including data input and management and use of technology (must incorporate technology into effort)

Recruit Teachers

- Teacher - where does teacher fit in? Teacher is "Keystone species"
- Incorporating teachers in LTER -
- Gives them access to info
 - Forms a community of researchers
 - Allows them to publish and communicate results (for example AAAS magazine called Dragonfly - SEE)
 - Creates interactive environments in class

Must demonstrate action -must make something happen in first year (workshop)

Bruce envisions a two-step funding effort [three?]

- first is this meeting and the Workshop, then use the PR machine [Patty], make enough noise.
- Second- perhaps a small supplement to each interested site [\$10,000?] for one year to see how it works.
- Third - Eventually \$100,000 to each site to get going on a full-blown effort to CHANGE THE WORLD

Need to get a White Paper into NSF outlining the New LTER K-12 model for educational outreach - this will be developed at workshop in Fall 1998. Will also outline what is already going on at LTER sites, how new model will build on existing infrastructure and interest (5-10 pages) wait to see what is accomplished at meeting, but give some idea of what future holds for this effort. Should there and will there be a long-term education committee?

Suggestion was made that with 100k grant, could use it to build a supplemental instruction team to deal with language, culture, mentoring problems to help minorities get through and into LTER science opportunities.

Bruce Hayden responded that FUNDING will NOT go to additional REU programs - they already exist and NSF wants something different.

SO! Initial communication to LTER Sites will involve

- 1) describe vision of endeavor
- 2) get information back about who is doing what, who is interested in participating in Fall Workshop,
- 3) identify teams to attend Workshop