

National Institute of Environmental Health Sciences



Environmental Health Sciences as an Integrative Context for Learning

2004 Grantee Meeting

**March 21-22, 2004
Baltimore, Maryland**

Environmental Health Sciences as an Integrative Context for Learning

Annual Grantee Meeting

March 21-22, 2004

Hosted by Maryland Public Television



Sunday March 21, 2004

Hyatt, Constellation Ballroom, Room F

1:00 pm Packet Pickup

2:00 pm Welcome and Introductions

Cynde Mutryn, Maryland Public Television

Michael Trush, Johns Hopkins University

Liam O'Fallon, National Institute of Environmental Health Sciences

2:15 pm Strategic planning for publications

Kendra Mingo, Oregon State University (moderator)

This session has been developed to facilitate discussion and planning among EHSIC grantees toward publications in 2004-2007. The three goals for this session are:

1. **Panel Discussion:** Panelists will review their process to publish in technical or non-technical journals, referencing publications from their programs and providing submission instructions. Panelists will highlight publication do's and don'ts.

Jodi Haney, Project EXCITE

Molly Bloomfield, Hydroville Curriculum Project

Nancy Moreno, ECOS Project

2. **Strategic Planning:** EHSIC meeting attendees will break into groups to brainstorm what would help us prepare to create publications targeted at three separate audiences: (1) Teachers; (2) Administrators (principals, superintendents, curriculum supervisors, and; (3) Others (scientists, policy makers, evaluators, or community). Groups will brainstorm and prioritize ideas and develop action plans for individual or joint publications.

3. **Beyond Publications:** Session coordinators will provide a list of other avenues for dissemination in 2005 and due dates for proposal submissions to help grantees plan to submit joint or individual proposals.

3:45 pm Break

4:00 pm How to Get Environmental Health Sciences Curricula into Schools?

Barry Schlegel, University of Medicine and Dentistry at New Jersey (moderator)

A panel of school and department of education representatives will present their perspectives in addressing the following questions: What strategies are most effective in getting schools to consider curricula for adoption? What processes and criteria are used for selecting and approving curricula? Where does environmental health sciences curricula best fit in a schools' overall curriculum program? How has the No Child Left Behind legislation affected curriculum adoption practices? What kinds of research-based evidence is needed for curricula to be adopted?

Panelists

Gus Loret de Mola, Miami-Dade County Public Schools

Lois Rotella, Woodbridge Township School District

Kathy Holmes, Ohio State Department of Education

Jim Kracht, Texas A&M University

5:00 pm Load bus for Johns Hopkins University, Bloomberg School of Public Health

The bus will be waiting for us at the Hyatt at the Charles Street entrance.

6:00 pm Poster Session & Welcome to Maryland Event Johns Hopkins University

Grantees will display their posters that highlight their accomplishments over the past four years.

8:00 pm Adjourn for Day

Monday March 22, 2004

Hyatt, Constellation Ballroom, Room F

7:30 am Registration and Continental Breakfast

8:30 am Attracting the Media

Brian Fitzek, Johns Hopkins University (moderator)

Communicating your cause or organization's programs to the public means more than just "publicity." It can help recruit volunteers, raise support, and improve your organization's public image. One of the most cost effective ways to reach a large number of people with your message is through mass media exposure. This media session is designed to introduce participants to the world of media relations. The session will be organized into three components:

1. **Overview of Media Relations** – Moderator Brian Fitzek will begin the session with a brief overview of media relations and the tools necessary to improve your odds of generating positive coverage for your event or program.
2. **Media Roundtable** – Representatives from newspaper, radio, and television will offer tips on how to effectively utilize various media for the purpose of publicizing special events and programs.

Merrie Street, Radio
Sharron Wylie, Television
Jonathon Bor, Newspaper

3. **Communicating Research Findings** – A representative from NIEHS will highlight the benefits and processes of interacting with the Office of Communication and Public Liaison at NIEHS.

Lou Rozier, NIEHS Office of Communication and Public Liaison

Come with questions, leave with answers!

10:30 am Break

10:45 am Federal Directions in Science Education

Liam O'Fallon, National Institute of Environmental Health Sciences (moderator)

This session comes on the heels of ESTME (Excellence in Science, Technology, and Mathematics Education) Week and a Summit on Science Education (3/15). At the Summit participants discussed how to improve public engagement, expand teacher knowledge, and develop a foundation of research for possible solutions to the challenges as set forth in the Math and Science Initiative (MSI). In addition, it comes at a time when there is change within the NIH – new leadership and new budget. In light of these events, panelists will discuss the directions science education appears to be going at the federal level.

Panelists

Anthony Fowler, U.S. Department of Education
Bruce Fuchs, Office of Science Education, NIH
Anne Sassaman, National Institute of Environmental Health Sciences

12:00 pm Depart for Maryland Public Television

12:30 pm Arrival, Sign-In, and Lunch**Maryland Public Television****1:15 pm Presentations and tour by MPT staff**

The Maryland Public Television facility is truly unique. Meeting participants will have the opportunity to see some of the cutting-edge technology resources MPT is developing for educators & families as well as to tour the MPT facility, home of PBS' *MotorWeek* and *Wall Street Week with Fortune*.

Greetings & Welcome – Gail Porter Long, Vice-President & Chief of Education, MPT

Thinkport Presentation – Diane Rymer, Manager Professional Development, MPT

Tour of MPT – Millicent Williamson, Volunteer Services, MPT

2:30 pm No Child Left Behind & Research-based education

Helene Jennings, MACRO International

In this session, the presenter will discuss how NCLB can impact EHSIC project evaluations. In addition, she will address 1) external project evaluators, 2) random assignment of subjects, and 3) necessary components to support EHSIC projects and ways to justify these projects in light of NCLB.

3:30 pm Circumventing Barriers to Curriculum Implementation

David Hursch, University of Rochester
Camille Martina, University of Rochester

In this session, presenters will discuss their work in assessing barriers that programs face in implementing their curriculum and what they have done to circumvent those barriers. They will also share their findings from the interviews they conducted at the 2003 EHSIC meeting.

4:15 pm Overview of Federal Science Education Programs

Liam O'Fallon, National Institute of Environmental Health Sciences (moderator)

The National Institute of Environmental Health Sciences is only one major player in the realm of science education. There are other programs that have been around longer than those at NIEHS. This session is organized so that meeting participants will hear about current and upcoming programs that dovetail nicely with their current EHSIC projects.

Panelists

Lawrence (Tony) Beck, National Center for Research Resources
Finbarr (Barry) Sloane, National Science Foundation
Jason Lazarow, National Institute of Alcoholism and Alcohol Abuse

5:00 pm Summary and final announcements**5:15 pm Adjourn**

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Introduction

The Environmental Health Sciences as an Integrative Context for Learning (EHSIC) program is now entering into its fourth year out of seven years of funding. At this time many of the projects are beginning to evaluate the outcomes of their research and look at ways of disseminating their findings. That is why two major foci of this meeting are dissemination and evaluation.

This year, the meeting will build upon discussions from our 2003 meeting in Miami, Florida where we addressed methods of dissemination. We will begin our meeting with an active strategic planning session to develop an action plan for publishing results in various journals. Participants will engage in active dialogues with one another to consider the best journals for a given audience. Following on the heels of that session, we will have a panel session to examine how best to get environmental health sciences curricula into the schools. The panel will be comprised of project partners from state departments of education, school systems, and universities. Later in the meeting, we will hear from a representative of the NIEHS Office of Communication and Public Liaison (OCPL) and from the University of Rochester project team on issues of dissemination. The OCPL representative will highlight the value of working with OCPL to develop and coordinate press releases pertaining to your research. The Rochester team will discuss barriers to curriculum implementation and how they overcame some of them. The team will also report back on the results from the survey they conducted at the grantee meeting last year.

No Child Left Behind (NCLB) is a concern of educators and curriculum developers. Therefore, we will have a presentation on how NCLB can impact the evaluations being conducted by the EHSIC projects. In addition, there will be some discussion on how this legislation has impacted curriculum adoption practices.

Working with the media was touched upon briefly last year as a means to disseminate our work. This year, we will have an in-depth session on how to attract the media to your science education events. Representatives from radio, television and news print will have a panel discussion on the best ways to engage them in your educational outreach events.

As we plan for the future, it is important to consider the global picture. This year we will have two sessions involving participation from other federal groups talking about directions in science education and their own science education programs. This session comes days after a summit in Washington, DC where many federal agencies came together to address the direction of science education.

As always, we will have a tour and a poster session to give us the opportunity to share information about our individual projects. The tour this year will be a little different. Rather than touring a school to see curricula being implemented in the classroom, we will visit Maryland Public Television to see some of the cutting-edge technology being developed for educators and families. The poster session will take place at Johns Hopkins University, Bloomberg School of Public Health.

Day 1. Participants will:

- Develop an action plan for disseminating project results.
- Identify conferences in which to participate.
- Identify strategies for getting curricula into schools.
- Consider how NCLB affects curriculum adoption practices.

Day 2. Participants will:

- Learn effective strategies for engaging the media.
- Obtain example press releases, media announcements, letters to the editor and more.
- See how MPT is developing technology based resources for teachers and families.
- Consider how NCLB impacts evaluation of EHSIC projects.
- Discuss possible barriers to curriculum implementation and identify solutions.
- Discuss Federal directions in science education.
- Learn about other Federal science education programs.

Strategic Planning for Publications

An essential component of the EHSIC projects is the evaluation and dissemination of the curricular materials developed. As projects begin to evaluate the outcomes of their research, publication of those results is one major means of increasing awareness of these innovative curricula. However, as discussed in the 2003 EHSIC Grantee Meeting, there are key journals that should be targeted for each audience that needs to know about the curricula.

This session has been developed to facilitate discussion and planning among EHSIC grantees toward publications in 2004-2007. There are three goals for this session:

- (1) **Panel Discussion:** Panelists will review their process to publish in technical or non-technical journals, referencing publications from their programs and providing submission instructions. Panelists will highlight publication do's and don'ts.

Jodi Haney, Project EXCITE
Molly Bloomfield, Hydroville Curriculum Project
Nancy Moreno, ECOS Project

- (2) **Strategic Planning Session:** EHSIC meeting attendees will break into groups to brainstorm what would help us prepare to create publications targeted at three separate audiences: (1) Teachers; (2) Administrators (principals, superintendents, curriculum supervisors, and; (3) Others (scientists, policy makers, evaluators, or community). Groups will brainstorm and prioritize ideas and develop action plans for individual or joint publications.
- (3) **Beyond Publications:** Session coordinators will provide a list of other avenues for dissemination in 2005 and due dates for proposal submissions to help grantees plan to submit joint or individual proposals.

Panel Discussion

Project EXCITE

Jodi Haney

Jodi Haney has published several articles related to teacher beliefs about implementing reform. Most of her work has appeared in the *Journal of Science Teacher Education*, the *Journal of Research in Science Teaching*, *Science Education*, and *School Science and Mathematics*. Project EXCITE publications are now ready for submission. A professional development model paper will be submitted to the journal of staff development and a paper outlining the EXCITE Problem based learning implementation model will be submitted to Eisenhower National Clearinghouse this spring. A research-based publication will be submitted to the *Journal of science teacher education* or the *Journal of research in science teaching* during Fall, 2004. All of these papers have been presented at national or international conferences this year.

Instructions for Authors:

Journal of Science Teacher Education (JSTE): <http://aets.chem.pitt.edu/publications.htm>

Journal of Research in Science Teaching: <http://www2.educ.sfu.ca/narstsite/publications/jrst.html>

Eisenhower National Clearinghouse:

<http://www.enc.org/features/focus/about/document.shtm?input=FOC-001685-index>

Hydroville Curriculum Project

Molly Bloomfield

Molly Bloomfield has published numerous articles describing the Hydroville Curriculum Project in regional and national journals including *The Science Teacher* (National Science Teacher Association) and the *Journal of Environmental Health*. Molly will discuss the process for submitting publications in these journals and also *The American Biology Teacher* (National Association of Biology Teachers).

Instructions for Authors:

National Science Teachers Association: <http://www.nsta.org/169>; <http://www.nsta.org/162>,
<http://www.nsta.org/153>

The American Biology Teacher: <http://www.nabt.org/sup/publications/guidelines.asp>

Journal of Environmental Health: http://www.neha.org/JEH/instructions_authors.htm

ECOS Project, Baylor College of Medicine

Nancy Moreno

Nancy Moreno will discuss ideas for self-publishing of curriculum materials, working with commercial publishers such as Carolina Biological and about the online, peer-reviewed journal, *Cell Biology Education*. Nancy Moreno is also the Editorial Director of also *BioEd Online*, a new peer-reviewed online publication (<http://www.bioedonline.org>), where it is possible to make slides, lesson plans and pdfs available to a wide teacher audience.

Instructions for Authors:

Cell Biology Online: <http://www.cellbioed.org/submissions.htm>

BioEd Online: <http://www.bioedonline.org>

See also Appendix I: Journal Submission Guidelines

See also Appendix II: NIGMS Publication Marketing Outlets

How to Get Environmental Health Sciences Curricula into Schools?

Barry Schlegel, University of Medicine and Dentistry of New Jersey (moderator)

A panel of school and department of education representatives will present their perspectives in addressing the following questions: What strategies are most effective in getting schools to consider curricula for adoption? What processes and criteria are used for selecting and approving curricula? Where does environmental health sciences curricula best fit in a schools' overall curriculum program? How has the No Child Left Behind legislation affected curriculum adoption practices? What kinds of research-based evidence is needed for curricula to be adopted?

Panelists

Gus Loret de Mola, Miami-Dade County Public Schools

Lois Rotella, Woodbridge Township School District

Kathy Holmes, Ohio State Department of Education

Jim Kracht, Texas A&M University

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Attracting the Media

Brian Fitzek, Johns Hopkins University (moderator)

Communicating your cause or organization's programs to the public means more than just "publicity." It can help recruit volunteers, raise support, and improve your organization's public image. One of the most cost effective ways to reach a large number of people with your message is through mass media exposure. This media session is designed to introduce participants to the world of media relations. The session will be organized into three components:

Overview of Media Relations – Moderator Brian Fitzek will begin the session with a brief overview of media relations and the tools necessary to improve your odds of generating positive coverage for your event or program.

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Merrie Street, Radio

Sharron Wylie, Television

Jonathon Bor, Baltimore Sun

Communicating Research Findings – A representative from NIEHS will highlight the benefits and processes of interacting with the Office of Communication and Public Liaison at NIEHS.

Lou Rozier, NIEHS Office of Communication and Public Liaison

GETTING THE MEDIA'S ATTENTION

Communicating your cause or organization's programs to the public means more than just "publicity." It can help recruit volunteers, raise support, and improve your organization's public image. One of the most cost effective ways to reach a large number of people with your message is through mass media exposure, through print, radio, and television. What follows is a brief explanation on how to effectively utilize various media for the purpose of publicizing special events and programs.

INTRODUCING.....THE MEDIA

In order for media efforts to be successful, a news releases must be sent to and capture the interest of the appropriate media—newspaper, radio and/or television. Select the outlets that fit your purpose and reach your target audience. Releases addressed to the editor/reporter most likely to be interested in your story have the best chance of being covered.

Newspapers. Newspapers are the primary source of information in most communities. When calling a larger newspaper, ask for the specific editor who covers the section you are interested in. Be prepared to answer any questions or to handle any requests for additional information. On smaller newspapers, one editor may be responsible for several sections. Smaller, community newspapers are much easier to place stories.



Radio. Radio is one of the most overlooked and under-used media available. News programs and various talk and call-in shows provide excellent opportunities to promote programs and special events. If you have a good idea for a program segment, write the producer and follow up with a telephone call.



Television. Television reaches the largest audience but not necessarily the audience that will benefit from your programs or participate in your special events. Even though on-air personalities are the most visible, they do not usually decide who or what goes on the air. Your release should be directed to the news assignment desk or the public affairs office. The news department will be concerned with the visual possibilities of the story (emphasize visuals).

What is Newsworthy?

The media is not in business to give *publicity*. They are in business to communicate news. Before you approach an editor or reporter with a story idea or send a press release, be sure it is really newsworthy. There are two kinds of news: *Hard news* and *feature news*. Hard news is fast-breaking. It must be reported when it happens, sometimes before. Feature stories are *timeless*.

MEDIA TOOLS

News Release

News releases for newspapers should be sent at least a week in advance. Weekly or monthly magazines should receive your releases several weeks (or even months) in advance; since publication schedules vary, contact each magazine to determine the best timing. Use the following **guidelines** designed to make things as easy as possible for the people handling your news releases.

Content

- A press release should be short and objective. Say what is important in as few words as possible. Try to keep news release to one-page.
- If you must go over one page, consider a fact sheet attachment.
- Be sure that all information is accurate. Check and recheck dates, times, locations.
- Keep information local. A local angle is more likely to be picked up by the media.

Layout

- If your organization doesn't have specific media release paper, you can either put the release on letterhead or at the top of the page, put your organization's logo/name/address
- Type "NEWS RELEASE" in large, bold font and center align.
- Below this, aligned left, type "FOR IMMEDIATE RELEASE."
- Across from this, put the name and telephone number of a contact person.
- Leave enough space in the margins so that the editor has room to edit or insert instructions.
- Releases should be typed, 1.5 to double-spaced, on one side only.
- If the release runs more than one page, write "more" at the bottom of each page and put a short heading at the top of second page (e.g. Environmental Connections).
- Try not to break a paragraph or a sentence at the end of a page.
- End the release with "####" centered.

Photographs

Often, EHSIC events and activities present an opportunity to tell our story with pictures. Daily papers will often send their own photographs to a news event or in connection with a feature story. While most prefer to use their own photos, some will print a good picture that is sent to them. There aren't any hard rules for effective pictures, but below are some hints for getting your photos into print:

- It is always best to show something happening, rather than a group of smiling people lined up looking into the camera. This can be as simple as a handshake in an awards ceremony or signing a paper.
- Whenever possible, have a photo accompany a press release.
- Don't crowd photos with too many people.
- All pictures should have captions identifying the photo, including the place, date, and event. Write the caption material on the lower half of a sheet of paper and tape the photo above the caption so the caption material shows at the bottom.
- Be sure to include the contact information and the relating story title on the caption sheet.

Public Service Announcements

Public Service Announcements (PSA's) for radio, television, and publications must generally be on behalf of non-profit organizations. To increase your chances of getting public service time/coverage, be sure your message is important and of interest to the community.

Op-Ed Page (or letter to the editor)

The op-ed page article is one of the best public relations tools in the business. Op-ed refers to that page facing the editorial page and is generally reserved for columnists and other guest writers of opinion articles. An article submitted for op-ed page consideration must be well-written, informative, thoughtful, and analytical. It should address itself to trends and developments on a rather broad scale; it can argue the merits or demerits of a particular issue, legislative proposal, or other public concern. Call the newspaper to find out their requirements for submitting an op-ed article (word count, content, format). Letters to the Editor also offer an excellent opportunity to be heard. Relate the letter to a recent article appearing in the newspaper. Contact the newspaper to determine word count limits.

Press Kits

Press kits are standard tool for events and ceremonies. They should be tailored to each event or program and should include the following:

- A brief letter explaining the event
- Press release(s) and/or feature story about the event, its participants
- Biographical information on any person(s) featured in the kit
- Visual materials such as black and white photos, ad slicks, bumper stickers
- Fact sheets

-
- Schedule of events, activities, meetings.
 - Brochures, annual reports



Press Releases

National Institute of Environmental Health Sciences

National Institutes of Health

FOR RELEASE
March 15, 2004
NIEHS PR #04-04

NIEHS CONTACTS:
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peterso4@niehs.nih.gov
Dr. Gwen Collman - (919) 541-4980
collman@niehs.nih.gov

Study Shows Effects of Prenatal Exposure to Second-Hand Smoke Greater for Socioeconomically Disadvantaged Children

The effects of prenatal exposure to second-hand smoke on mental development are exacerbated in children who experience socioeconomic hardships, such as substandard housing and inadequate food and clothing, during the first two years of life, according to a new study funded by the [National Institute of Environmental Health Sciences](#), one of the [National Institutes of Health](#), the [U.S. Environmental Protection Agency](#), and other private foundations.

While the study results indicate that prenatal exposure to second-hand smoke can be harmful to the unborn child regardless of socioeconomic conditions, the data also suggest that lower-income children may be less able to compensate for these effects over the next few years of life. The study will appear in the March 2004 issue of the journal *Neurotoxicology and Teratology*.

The study, conducted by researchers at the [Columbia Center for Children's Environmental Health](#), part of the Mailman School of Public Health at Columbia University, found that children whose mothers are exposed during pregnancy to second-hand smoke have reduced scores on tests of cognitive development at age two, when compared to children from smoke-free homes.

The reduction amounts to almost five developmental quotient points out of an average score of 100. In addition, the children exposed to second-hand smoke during pregnancy are approximately twice as likely to have developmental scores below 80, which is indicative of developmental delay.

These differences are magnified for children whose mothers lived in inadequate housing or had insufficient food or clothing during pregnancy. The combined effect results in a developmental deficit of about seven points in tests of cognitive performance.

While the influence of material hardship on the association between second-hand smoke and cognitive development was measured during the postnatal period, the test results show that the subjects' postnatal exposure to second-hand smoke does not confer any additional risk for developmental deficit over and above that contributed by prenatal exposure alone.

"These findings reveal the dangers for pregnant women and their unborn children of multiple 'toxic' exposures-both chemical and socioeconomic," said Dr. Virginia Rauh, a Deputy Director of the Center and Associate Professor at the Mailman School of Public Health and principal author of the study. "They show, for the first time, that urban children exposed to both conditions experience a kind of double jeopardy with consequences persisting into early childhood and possibly beyond".

The study is part of a broader, multi-year research project, "The Mothers & Children Study In New York City", started in 1998, which examines the health effects of exposure of pregnant women and babies to air pollutants from vehicle exhaust, the commercial burning of fuels, and tobacco smoking, as well as from residential use of pesticides, and cockroach and mouse allergens.

The research involved a sample of 226 infants of non-smoking African American and Dominican women in Washington Heights, Central Harlem and the South Bronx. Each of the women was interviewed during the third trimester of pregnancy, for approximately 45 minutes, by a specially trained bilingual interviewer.

From those interviews, data were obtained on their exposure to second-hand smoke, also known as Environmental Tobacco Smoke (ETS), and on their socioeconomic status and living conditions. The ETS exposure was further validated using a short-term biomarker of exposure: the level of cotinine in the umbilical cord blood at the time of delivery.

"This finding reinforces the need to prevent serious developmental problems in children by addressing harmful prenatal exposures," said Dr. Frederica P. Perera, Director of the Center and the study team leader. "From a health policy standpoint, it is important both to limit exposure to second-hand smoke and to better the living conditions of pregnant women and their children."

Other co-authors of this study include Drs. Robin Whyatt, Robin Garfinkel, Howard Andrews, Lori Hoepner, Andria Reyes, and Diurka Diaz of CCCEH and David Camann from Southwest Research Institute.

For more information or a copy of the study, please contact Heather Ross at 212-576-2700 x243.

###

The URL for this press release is: <http://www.niehs.nih.gov/oc/news/shsmoke.htm>

NEWS RELEASE

For Immediate Release

Contact: Brian Fitzek
Public Relations Manager
(301) 731-4535

Six Foot Cockroaches Invade Louisville

Entomological Society of America Comes to Louisville for Annual Meeting

Lanham, MD, November 12, 1996 -- If you think insects are disgusting, insignificant creatures, the Entomological Society has news for you. From December 8-12, more than 2,000 entomologists will descend on Louisville for the Society's annual meeting. The meeting is devoted to exploring and illuminating the intimate relationship between insects and humans. The conference concludes on Thursday, December 12 with **Insect Expo, an educational event expected to draw more than 4,000 local students**. It will include insect-quiz competitions, a walk-in butterfly cage, displays of exotic insects, a maze to demonstrate how insects navigate with smell, a racing cockroach show, insect Olympics, insect cuisine, and roaming entomologists dressed like their favorite insects.

WHAT: Each year entomologists from around the globe gather to exchange scientific information at the **annual meeting of the Entomological Society of America (ESA)**. These scientists make significant contributions in such diverse fields as agriculture, biology, chemistry, ecology, forensics, forestry, genetics, human and veterinary medicine, and pest control.

WHO: More than 2,000 entomologists are expected to attend the scientific presentations. 4,000 local school children will get a close-up look at the world of bugs at Insect Expo.

WHERE: The Galt House Hotel, Louisville, KY

WHEN: December 8 – 12, 1996

WHY: Insects have been around for roughly 350 million years, while modern humans have been around for only 200,000 years. In that time, insects have settled into nearly every environment on the planet. The study of insects helps us understand more about other animals and the environment. For example, the quantity and quality of insect life in and around a pond can indicate the presence or absence of pollution. The scientific program will focus on how to cope with insects that attack us, transmit disease, eat our houses, spoil our food, destroy and pollinate food crops or pester our pets and livestock.

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Founded in 1889, ESA is a non-profit organization committed to serving the scientific and professional needs of nearly 6,000 entomologists and individuals in related disciplines. ESA's membership includes representatives from educational institutions, government, health agencies, and private industry.

MEDIA ANNOUNCEMENT

For Immediate Release

Contact: Brian Fitzek
Director of Communications
(410) 560-2120

Camp Provides Air of Freedom for Six Baltimore County Kids
American Lung Association Sponsors Camp for Kids with Asthma

Timonium, MD, June 22, 2000 – The great outdoors isn't always so great for the 89,000 Maryland children who wheeze, cough, and gasp for air. But asthma need not prevent an active summer. **At Camp Superkids 2000, six Baltimore County children with asthma learned to manage the disease** while enjoying traditional camp activities, such as arts and crafts, archery, and other sports. Camp was held at the Carol Jean Cancer Foundation's Camp Friendship facility in Montgomery County from July 15 to 20.

Many parents of children with severe asthma are wary of sending their children to summer camp because they're afraid that camp staff may not be prepared to handle an asthma attack. Camp Superkids is designed specifically for the needs of young people with severe asthma. Camp Superkids is staffed by medical professionals. Education programs are held each day on how asthma affects the lungs, how asthma medications work and how to take them correctly. "Lessons are structured around a fun activity," explains Ava Barbry, director of education for the Lung Association. "A game show format or relay race can be settings for lessons on the importance of adhering to daily medications. A scavenger hunt teaches campers to identify asthma triggers." Throughout the week, campers are taught relaxation techniques, physical conditioning and control exercises to make their breathing easier. **"Camp taught me that I can do all the things other kids can do, as long as I take care of my asthma," said Yvonne Ridgley, a ten-year old camper from Catonsville.**

###

The mission of the American Lung Association of Maryland is to prevent lung disease and to promote lung health.

Sample Letters to the Editor

The citizens of Maryland may be better served by investing in cleaner buses rather than in tracking technology for those buses (Buck Roger Buses, OpEd 2/13/03). Maryland ranks third among states on estimated cancer deaths from air toxics, of which diesel buses are a significant source. Dramatic and relatively inexpensive emissions-reductions benefits for buses could be achieved with one-fifth the expense of GPS tracking. As outlined in a report by the Citizens Planning & Housing Association, converting the entire MTA fleet to ultra low-sulfur diesel fuel and retrofitting buses with particulate traps would cost approximately \$7,000 per bus compared to the \$30,000 per bus for GPS technology. Let's pursue the course with the most benefits to our region and public health. We deserve the improved quality of life that these simple, practical changes could bring.

Michael Trush, PhD
Deputy Director, Johns Hopkins Center in Urban Environment Health
Johns Hopkins Bloomberg School of Public Health
615 N. Wolfe Street
Baltimore, MD 21205
Home: (410) xxx-xxxx
Work: (410) xxx-xxxx

Recent Sun articles have highlighted the innovative cancer-related research coming from Maryland scientists (*Hopkins scientists link protein to colon cancer*, Feb 4 & *Pollutants in 3 areas triple EPA estimates*, March 10). What readers may not know is that this research was made possible through Maryland's tobacco settlement. These funds are playing a significant role in the emergence of Maryland as a national leader for cancer prevention and control. Unfortunately, the budget deficit facing our state makes these funds a target for other initiatives. As the General Assembly deliberates next year's budget, I urge them to continue this program for important research and statewide public health programs. The partnership between Maryland, the communities, and the state's two leading cancer research institutions is essential to facilitate today's therapies and tomorrow's cures.

[Martin D. Abeloff, M.D.](#)

Director, The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins
Eli Kennerly Marshall, Jr., Professor of Oncology
Home: (410) xxx-xxxx
Work: (410) xxx-xxxx

Sample Op Ed

Protecting public health from environmental harms is sound public policy *Baltimore needs better, healthier public transportation now*

With summer's approach, air quality is back in the news. The American Lung Association's State of the Air report card released on May 1st reveals that Marylanders continue to breathe some of the most polluted air in the nation. Extensive scientific studies indicate that there are significant public health effects associated with air pollutants. Particulate matter and ozone are linked to a variety of respiratory and cardiovascular problems. According to a Natural Resources Defense Council study, particulate matter alone causes nearly 1,000 premature deaths annually in Maryland. A closer look at the past summer shows 82 of 137 days with elevated ozone levels. While federal regulations will force reductions in air pollution over the next decade, cleaner air can only be achieved through a partnership between federal leadership and local initiatives. There are steps we can take now to pull hazardous soot and smog out of our region's air and protect our public health in the near future.

Diesel burning buses are significant contributors to ozone producing pollution, soot (particulate matter) and a multitude of other toxic and hazardous air pollutants including metals, benzene, and benzo[a]pyrene derivatives. As pointed out in a series of recent Sun editorials, the lack of efficient public transit, traffic congestion, and the associated air pollution is having a negative impact on Baltimore and the region. While MTA has plans to replace their current fleet with cleaner buses, this process will take many years to implement and in the meantime, we continue to breathe unhealthy diesel exhaust. Fortunately, cleaner, affordable technologies are currently available that could clean up our air in the short-run. A detailed study released earlier this year by the Citizens Planning & Housing Association (CPHA) identifies practical recommendations for reducing emissions from MTA buses. Switching to cleaner, ultra-low sulfur fuels and retrofitting buses with particulate traps may be the most viable way for this area to attain healthier air in the immediate future. Proper bus maintenance to reduce emissions and relocation of overnight bus storage areas to non-residential areas will result in improved air quality for *all* of our citizens. Once implemented, we believe these strategies will result in improved air quality within the next two to three years.

It will take a concerted effort by all sectors of society and government to address the critical issues of air quality facing the Baltimore region. Continued purchase and operational testing of electric-hybrid buses and other technologies is important for long-term changes. In the meantime, we urge MTA to seriously consider the recommendations of the CPHA report. What we decide today will govern how much pollution will be in our air next year and how much our children breathe for decades to come. The health of our region depends on taking effective action now. Everything else is just blowing smoke.

John D. Groopman, PhD
Director, Johns Hopkins Center in Urban Environmental Health

Michael A. Trush, PhD
Deputy Director, Johns Hopkins Center in Urban Environmental Health

Federal Directions in Science Education

Liam O'Fallon, National Institute of Environmental Health Sciences (moderator)

This session comes on the heels of ESTME (Excellence in Science, Technology, and Mathematics Education) Week and a Summit on Science Education (3/15). At the Summit participants discussed how to improve public engagement, expand teacher knowledge, and develop a foundation of research for possible solutions to the challenges as set forth in the Math and Science Initiative (MSI). In addition, it comes at a time when there is change within the NIH – new leadership and new budget. In light of these events, panelists will discuss the directions science education appears to be going at the federal level.

Panelists

Anthony Fowler, U.S. Department of Education

Bruce Fuchs, Office of Science Education, NIH

Anne Sassaman, National Institute of Environmental Health Sciences

Presentations and tour by MPT staff

The Maryland Public Television facility is truly unique. Meeting participants will have the opportunity to see some of the cutting-edge technology resources MPT is developing for educators & families as well as to tour the MPT facility, home of PBS' *MotorWeek* and *Wall \$treet Week with Fortune*.

Greetings & Welcome

Gail Porter Long, Vice-President & Chief of Education, MPT

Thinkport Presentation

Diane Rymer, Manager Professional Development, MPT

Tour of MPT

Millicent Williamson, Volunteer Services, MPT

No Child Left Behind & Research-based education

Helene Jennings, MACRO International

In this session, the presenter will discuss how NCLB can impact EHSIC project evaluations. In addition, she will address 1) external project evaluators, 2) random assignment of subjects, and 3) necessary components to support EHSIC projects and ways to justify these projects in light of NCLB.

Circumventing Barriers to Curriculum Implementation

David Hursch, University of Rochester
Camille Martina, University of Rochester

In this session, presenters will discuss their work in assessing barriers that programs face in implementing their curriculum and what they have done to circumvent those barriers. They will also share their findings from the interviews they conducted at the 2003 EHSIC meeting.

Overview of Federal Science Education Programs

Liam O'Fallon, National Institute of Environmental Health Sciences (moderator)

The National Institute of Environmental Health Sciences is only one major player in the realm of science education. There are other programs that have been around longer than those at NIEHS. This session is organized so that meeting participants will hear about current and upcoming programs that dovetail nicely with their current EHSIC projects.

Panelists

Lawrence (Tony) Beck, National Center for Research Resources

Finbarr (Barry) Sloane, National Science Foundation

Jason Lazarow, National Institute of Alcoholism and Alcohol Abuse

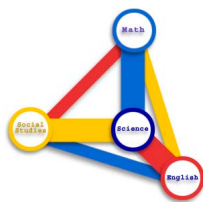
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Project Summaries

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Bioterrorism Then and Now: Three Rivers, Three Nations

Texas A&M University
Center for Environmental and Rural Health
R25 ES 10735

Larry Johnson, James Kracht, William Klemm, Deborah Kochevar, Jon Hunter, K. C. Donnelly, Carmen Sumaya, Jimmy Lindner, Gary Wingenbach, Sabrina Akhtar, and Vince Hardy

The long-term goal of the Partnership of Environmental Education and Rural Health (PEER; <http://peer.tamu.edu>) is to encourage teachers to motivate students by showing how mathematics, English language arts, social studies, and science relate to real world environmental health science problems and issues. PEER features curricular development, professional development, and scientists' visits to rural schools grades 6-8. Rural schools are emphasized because they typically lack high quality science instruction due to the shortage of adequately prepared teachers and because rural schools have limited access to an abundance of instructional resources. Rural environments also pose special environmental health hazards (e.g., dust, agricultural materials and waste). PEER has developed learning modules that are integrated around adventure stories which introduce an environmental health hazard and a problem to be solved by characters in the story. Social studies content directs the location and time (historical or contemporary) of the modules. The modules focus on world geography in grade 6, Texas history and geography in grade 7, and United States history in grade 8. This framework allows construction of adventures directed at environmental health science problems in different eras and locations that exemplify problems such as contaminated food and water, air pollution, and contagious or environmentally transmitted diseases which we have in the U.S. today. The module illustrated here (Three River, Three Nations) is set in North America in the 18th century and is intended for the 8th grade. The environmental health science problem centers on the disease of smallpox and the use of the smallpox virus then and now in bioterrorism. Students must assess the contaminated environment, formulate a strategy to determine the source of the disease, and find ways to help prevent or reduce exposure to health hazards. In this process, students read and answer questions about the adventure and summarize major points of the story. English language arts components of all adventures include vocabulary, grammar, language usage, and writing activities. In the North American adventure, students explore myth versus fact and story weaving. Students learn about the political conflict in Europe among three nations and how it was brought to North America and set up the opportunity for the use of smallpox in bioterrorism on U.S. soil. The establishment of the thirteen British colonies leading to the development of the United States, as well as the interest and influence of Spain and France on that development, integrate social studies. Mathematics begins with a graphic-ferish start, calculates river flow rates and its effects on river travel, and finishes with calculations of the volume of pus and number of viruses in a smallpox blister. The scientific angle is to solve the problem of the method followed by the disease as it spreads through the investigation of the four basic routes of environmental exposure (inhalation, infection, ingestion, and absorption). Students also learn the origin and characteristics of the smallpox virus, differences in susceptibility among people, and the value of quarantine and destroying diseased dead bodies. A comparison is made to diseases of the youth today (chicken pox, monkey pox, and measles), and details are provided as to how smallpox was used in the 18th century and how it can be used for bioterrorism today. Students end with persuasive essays (should or should not smallpox virus be kept by scientists today), descriptive writing (who is at risk for the disease), comparing and contrasting the style of scientific verses newspaper writings on events like bioterrorism, and outlining procedures to control an outbreak of smallpox or other potentially infectious bioterrorism agents.

Other integrative curricular developments include the completion of several sixth grade modules, e.g., "Congo Cry" about viral infections, Ebola, and AIDS with a setting of Ebola (Congo) in sub-Saharan Africa and "Midnight at the Marble Tomb" on the subject of infectious hepatitis in India. In addition to these, two modules for the 7th grade, "Texas 1867" on yellow fever and "March Madness" on influenza,

have been completed and tested in teacher workshops. Another 8th grade module, "The Waterfall Ghost" on brown lung in the early Northeast U.S. is nearing completion. A third 8th grade module "Dark Poison" on cholera is just starting production. Two modules are currently being tested in public schools.

Eight two-day and one one-day professional development workshops were conducted last summer. These workshops were located throughout the state and provided teachers with curriculum, environmental health science content, and training technology to be used in their classrooms. Last summer, 150 teachers trained in two-day workshops. One-day workshops were provided to 75 teachers. Also, the workshops have been extended to pre-service teachers this past year. Pre-service teachers came to our College Station workshop for two days; more typically, we presented PEER curriculum and provided them with CD's of the curricula in a two hour class. A total of 268 pre-service teachers were informed of the integrative PEER curriculum and given a CD of the curriculum to take to their first school when they complete college. A similar number of pre-service teachers are anticipated to be taught the PEER curriculum this school year. Scientists' visits included personal interface, virtual presentations, and interviews. Scientists' visits to public schools this year provided over 3,877 rural middle school students and 213 teachers with scientific presentations on the health of the respiratory system. Another 2,505 rural middle school students and 71 teachers received a visit from a scientist, training on scientific methods, and instruction on the integrative curriculum via "Wings Across Texas" (a private plane traveling to remote locations of schools with a scientist to visit the school). One of our PEER scientists has flown over 25,000 miles within Texas to reach schools in remote locations throughout rural Texas. Sixty-six presentations were given to 25 schools this year. Eight scientific presentations were produced and placed on-line (<http://peer.tamu.edu/presentations.shtml>) via streaming videos to provide scientific input to rural schools. Nineteen scientists and 17 collegiate academic educators were interviewed concerning their early childhood-school interactions and how they became interested in science or their non-science career and were placed on-line (<http://peer.tamu.edu/interviews.shtml>).

In Summary of Progress on all Three Specific Aims of ES10735 for the past year

Two modules were produced, two tested in schools, and four were put into production. Two were used in workshops where 288 teachers were trained. Two-hundred and sixty-eight pre-service teachers learned about and received PEER curricular materials. A group of 6,382 rural school students and their 279 teachers received a scientist visit via the personal interface. These teachers and students were contacted via over 3,000 letters/faxes/calls made directly to teachers or schools in rural Texas. It is unknown how many students and teachers were exposed to environmental health science via the virtual scientists' presentations and interviews. Hence, two curricular modules were produced, 656 teachers and 279 pre-service teachers were taught science, and 6,382 students received scientists' visits.

Significance – The target population of PEER is composed of those from low population density rural areas of Texas of who over 60% are minority, low income public middle school students. Feedback from teachers and students following scientists' visits or workshops are positive and indicate a significant impact on the science education of students in geographically-isolated locations.

Submitted Publications

Lindner, J. R., Wingenbach, G. J., Harlin, J., Li, Y., Lee, I., Jackson, R., Johnson, L., Klemm, W., Hunter, J., Kracht, J., and Kochevar, D. (Submitted, 2003). Factors influencing beliefs about science and career choice. In J. Cano, & L. Millder (Eds.), Proceedings of the 30th National Agricultural Education Research Conference, Orlando, FL, xx-xx.

Lindner, J. R., Wingenbach, G. J., Harlin, J., Li, Y., Lee, I., Jackson, R., Johnson, L., Klemm, W., Hunter, J., Kracht, J., and Kochevar, D. (Submitted, June 2003). Rural middle school students'

beliefs about science and sources of influence affecting science career choice. NACTA Journal, xx(xx), xx-xx.

Gerst, T., Li, Y., Haba, S., Elbert, C., Johnson, L., Lindner, J. R., Klemm, W., Hunter, J., Kracht, J., & Kochevar, D. (Submitted, March 2003). Exploration of a middle school web-based curriculum in environmental and health science. Online Journal of Distance Learning Administration.

Published Publications

Price, J. E., Lindner, J. R., Wingenbach, G., Johnson, L., Klemm, W., Kochevar, D., Hunter, J., & Kracht, J. (2003). Increasing student learning through integrated curricular materials: Partnership for environmental education and rural health (PEER) [Abstract]. In J. Christiansen, J. Lindner, & G. Wingenbach (Eds.), Proceedings of the 19th Annual Conference of the Association for International Agricultural and Extension Education. Raleigh, North Carolina, 810.

Gerst, T., Li, Y., Haba, S., Elbert, C., Johnson, L., Lindner, J. R., Klemm, W., Hunter, J., Kracht, J., & Kochevar, D. (2003). Exploration of a middle school web-based curriculum in environmental and health science. Proceedings of the 9th Annual Distance Education Conference. Austin, TX, 1-11.

CD-ROMs

Two thousand CD-ROMs were distributed to rural middle school teachers. Cds contained either the Integrated Curriculum and Scientists' Presentations on environmental health science or Scientists' Interviews.

Websites

Curriculum (<http://peer.tamu.edu/IntegratedCur.shtml>)
Scientist Presentations (<http://peer.tamu.edu/presentations.shtml>)
Scientist Interviews (<http://peer.tamu.edu/interviews.shtml>)
Educators Interviews (<http://peer.tamu.edu/EdInterviews.shtml>)

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EnviroHealth Connections

A Collaborative Exploration of the Environment & Human Health

Maryland Public Television
R25 ES10700

Principal Investigator: Gail Porter Long, M.Ed., Senior Vice-President, Education & Community Outreach, Maryland Public Television

Co-Principal Investigator: Michael Trush, Ph.D., Deputy Director, Johns Hopkins Center in Urban Environmental Health, Department of Environmental Health Sciences, The Johns Hopkins Bloomberg School of Public Health

Project Manager: Cynthia Mutryn, M.Ed., Manager, Technology Professional Development Projects, Maryland Public Television

Maryland Public Television (MPT) and partners: the Johns Hopkins Bloomberg School of Public Health, Maryland State Department of Education (MSDE), Johns Hopkins Center for Technology in Education (JHU CTE), and four of Maryland's largest school districts: Prince George's County Public Schools, Montgomery County Public Schools, Baltimore County Public Schools, and Baltimore City Public Schools have joined together to develop, implement, evaluate and disseminate an innovative model for using environmental health as an integrative context for learning (EHSIC).

Specific aims of "Connections" include:

- Development and cutting edge dissemination of high-quality video and online educational resources for middle school teachers and their students, based on Maryland State Standards, that can be used to deliver interdisciplinary lessons based on EHS curricular content and high quality education technology resources.
- Lesson plans, Student Learning Activities, and Projects housed on Maryland Public Television's new Thinkport supersite at www.thinkport.org
- An EnviroHealth Connections Electronic Learning Community at: <http://www.cte.jhu.edu/ep/> to provide dynamic professional development communications and resources for secondary educators participating in annual EnviroHealth Connections Summer Institutes and Winter Colloquia.
- An EnviroMysteries: Breaking the Mold video and interactive website (sequel to the NIEHS grant-funded EnviroMysteries: "Water + ? = Trouble") at: <http://enviromysteries.thinkport.org/> on the topic of indoor air pollution and asthma.
- An environmental health and education technology teacher training video. (In progress, Spring 2004)
- Development of intensive teacher training programs in environmental health and technology,
- An annual 2-day Winter Colloquium each January involving the recruitment of interdisciplinary teams of Maryland middle school teachers
- An annual 4-day Summer Institute each July open to 100 secondary teachers of all curriculum areas from throughout the state to enhance teachers' ability to:
 - Develop and deliver interdisciplinary instructional units based on environmental health concepts, to integrate quality technology resources (i.e., videos, quality educational software, Internet resources, digital cameras, multimedia software, etc.), and to improve technology delivery to students.

-
- Address learning needs of all students about relevant environmental health science issues, concepts and career opportunities, in order to develop skills students need to perform successfully in all academic subjects according to Maryland State Standards.
 - The provision of environmental health scientists, through a Speakers Bureau, with whom Maryland middle school teachers and students can interact and learn.

The “Connections” Project is unfolding in three phases:

Phase I – Enhancement of Teacher Capacity and Development of Needed Curricular Materials:

Fall 2000 - Summer 2003

Phase II – Implementation in Middle Schools: Fall 2003 – Spring 2006

Phase III – Evaluation and Dissemination of EHSIC Model: Fall 2006 - Spring 2007



Project EXCITE
(Environmental Health Science Exploration Through
Cross-Disciplinary & Investigative Team Experiences)

Bowling Green State University
R25 ESI0705

Co-Principal Investigator: Charles B. Keil, Ph.D., CIH
Co-Principal Investigator: Jodi J. Haney, Ph.D.
Project Manager: Amy L. Boros, M.Ed.

Collaborating Institutions:

- Ohio Department of Education
- Ohio Environmental Protection Agency
- Center of Science and Industry (COSI) Toledo • Medical College of Ohio
- 12 Ohio Public and Parochial School Districts

Contact Information:

<http://www.bgsu.edu/colleges/edhd/programs/excite>

Goals:

Project EXCITE aims to advance the awareness of local environmental health science issues and generate social responsibility in students; to augment the range of inquiry-based teaching techniques and strategies for integrating both science and non-science concepts; and to enhance both EHS content knowledge and inquiry skills needed for success on standardized tests.

The project aims to assist teacher and pre-service teachers in creating, implementing, and disseminating interdisciplinary EHS problem-based learning (PBL) units in fifth – tenth grade classrooms across northwest Ohio. Cohort 2, currently consisting of six teacher teams is participating in their initial year of a two-year cycle of the project. The primary members of each team include four teachers drawn from different academic disciplines who work side-by-side with an undergraduate science education major, a school administrator, university faculty members including a scientist, and a community partner.

Works in Progress:

Currently, Project EXCITE is focusing on three ongoing projects: our PBL model, EHS system and EHS core content information project. Significant progress is being made on the first two. The PBL model has been refined based on suggestions after use by teachers and students and has been published through our curriculum units as a tested model for instruction and implementation of EHS topics. Our EHS system also has been updated and revised after field-testing to reflect needs of school age students and adults alike. We have added descriptors for items and a rubric for evaluation to make the system truly user friendly for breaking down and analyzing an EHS topic.

Our third ongoing project, defining and creating standards for EHS core concepts and content information is progressing more slowly. We are diligently working with practicing EHS scientists to develop a set of education standards and benchmarks (similar to state and national science

education standards) for EHS matrices such as air, water, indoor environment, human exposure, food safety and societal systems for EHS. Currently the EHS content standards are in draft form and are being edited and revised. Eventually the project would like to include standardized assessments for each of the content standards developed.

2003 Project Benchmarks:

Exciting Numbers:

Numbers of schools to date = 12

Number of teachers to date = 53

Number of pre-service teachers to date = 14

Number of professional development hours per teacher = 180+

Number of students experiencing local EHS PBL units to date = 2500

Number of students to experience ZoOdyssey to date = 3000

Number of items in EXCITE loaning library = 400

Pilot testing of ZoOdyssey began in 2001 with middle school students and is currently in phase 4 with middle, high school and university students.

The ZoOdyssey Interdisciplinary Unit was published for dissemination. The EXCITE staff and teachers have implemented the unit with students from grades 4 – university with great success. The curriculum has been distributed to teachers via EXCITE meetings, regional and national conferences including the Hawaii International Conference on Education and Environmental Educators Council of Ohio. Dr. Haney traveled to Trinidad to work with teachers and teacher educators where they too received and were trained to use ZoOdyssey.

The EXCITE staff has developed FoodOdyssey, an interdisciplinary investigation of food poisoning Unit which will soon go to publication and dissemination. Other units in development include: ETS Odyssey (environmental tobacco smoke), AgOdyssey, a look at factory farming vs.

Current EXCITE teachers, cohort 2 (2003-2005) are in the development and initial implementation phase of their EHS curriculum units. Topics include: mosquito control, the indoor school environment, availability of quality water, and school cafeteria issues.

Two consultants and one additional project staff member were trained in the Horizon's Observation Protocol to document teachers' classroom behaviors. Observations are underway at current cohort 2 schools.

The Project hosted a Teacher Summer Institute in August 2003 and trained 6 teams of teachers (30 total) in environmental health science, team teaching, problem based learning, and design and implementation of an interdisciplinary EHS curriculum unit. Teachers worked directly with scientists from BGSU and Medical College of Ohio on activities centered around the environmental health of "factory farms" in the area including risk analysis, environmental toxicology, as well as air and water quality evaluation.

Project evaluation focusing on development of student content knowledge (using matched pre/post science content assessment [POPS test]) showed a significant increase during implementation of EXCITE materials.

EXCITE teachers from cohort 1 (2001-2003) completed their self designed interdisciplinary EHS curriculum units. A consultant working with EXCITE is combining similar units and unifying the structure to fit the EXCITE Odyssey format used for ZoOdyssey and FoodOdyssey. Topics soon to be in publishable form include: Sick of School Odyssey, an investigative approach to the school environment;

E-Odyssey, an investigation of a new power plant in the area; and the Shining Odyssey, an investigation of cleaning products.

EXCITE was presented at the following conferences (2003 to date):

Boros, A., Haney, J., Keil, C.: Project EXCITE: Environmental Health Science Explorations through Cross-Disciplinary and Investigative Team Experiences: A Professional Development Model for Educators. Hawaii International Conference on Education, Honolulu, HI January 2004.

Haney, J., Keil, C., Boros, A.: EXCITE Problem-Based Learning Odysseys: A Voyage Worth Taking!, Hawaii International Conference on Education, Honolulu, HI January 2004.

Haney, J., Keil, C.: EXCITE Problem-Based Learning Odysseys: Integrating Problem Solving, Environmental Health and Technology into the Middle Grades Curriculum. Hawaii International Conference on Education, Honolulu, HI January 2004.

Boros, A., Haney, J., Keil, C: Introducing Environmental Health Science to the School Frontier. North American Association for Environmental Education Conference, Anchorage, Alaska October 2003.

Haney, J., Boros, A.: Teaching Environmental health science Explorations through Cross-disciplinary and Investigative Team Experiences: A Professional Development Program for Educators. International Organization for Science and Technology Education North American Conference, Williamsburg, VA June 2003

Boros, A., Haney, J., Keil, C: Effective Interdisciplinary Teaching Through Problem Based Learning. Ohio Middle School Association State Conference, Akron, OH April 2003

INTRODUCTION TO NIEHS INTERDISCIPLINARY ENVIRONMENTAL HEALTH PROJECTS. National Science Teachers Association Conference, Philadelphia, PA March 2003.

Boros, A., Haney, J., Keil, C: Generate Student EXCITEMENT with Problem Based Learning. Environmental Educators Council of Ohio Annual Conference, Toledo, OH, March 2003.

Boros, A., Haney, J., Keil, C: Meeting the Standards with Problem Based Learning. Ohio Technology Education Association Spring Conference, Toledo, OH March 2003.

Boros, A., Silverman, G., Morrone, M.: Environmental Health Science Programs. Science Educators Council of Ohio Conference, Dayton, OH. February 2003

Publications:

The project newsletter, EXCITE Taking Action, is published twice each year and distributed to local educators, curriculum directors, school boards and Ohio Department of Education.

Haney, J. and C. Keil. 2004. EXCITE Problem-based Learning Odysseys: Integrating Problem Solving, Environmental Health and Technology into the Middle Grades Curriculum. Proceedings, Hawaii International Conference on Education, Honolulu, Hawaii.

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The Environment as a Context for Opportunities in Schools (ECOS) Project

Baylor College of Medicine, Houston, Texas
R25 ES10698

Specific Aims.

Project aims are to: (1) collaboratively design, implement and evaluate an instructional program for elementary schools that integrates science, health, reading/language arts, mathematics and social studies around environmental health science themes using the My Health My World educational materials; (2) improve teacher practice through intensive summer and year-round professional development on content and teaching strategies; (3) support school-wide reform of teaching and learning through workshops and collaborative activities; (4) examine student content knowledge and problem-solving skills, student attitudes, teacher development and whole-school reform; and (5) disseminate the curricular/instructional model, evaluation outcomes and other research findings.

During the 2003–2004 school year, we introduced a full implementation model of My Health My World and My World and Me units in three Houston Independent School District elementary schools, with a second cohort of matched schools serving as comparison populations. In addition, the Houston Independent School District (HISD) continues to sponsor the My Health My World Institute for an additional 40–50 teachers each year

Curriculum Development.

A second unit of the My World and Me (MWM) series, Resources and Environments, was completed and field tested in spring, 2003. The unit will be published by Carolina Biological Supply in summer, 2004, and already is in use by teachers participating in the ECOS project. The unit consists of an illustrated “big book” (Tillena’s Big Adventure), a student reader, a teachers guide and a materials kit created by Carolina. The unit focuses on resources and natural and constructed environments. In addition, at the request of the National Institute of Alcohol Abuse and Alcoholism (NIAAA), we are developing a new unit of educational materials on alcohol and health. The unit will use alcohol as a model of how toxic chemicals interact with the body and will examine social and health effects of alcohol abuse. The unit will be piloted in schools participating in the ECOS project and in Washington, DC, during the 2004–2005 school year.

Teacher Professional Development.

Again in 2003, we conducted a one-week course on environmental health sciences concepts for elementary teachers for 36 teachers. Called the My Health My World Institute, the course provides an overview of environmental health sciences, an introduction to toxicology concepts and comprehensive hands-on training on all four MHMW units and the first MWM unit. The institute is co-sponsored by HISD’s Urban Systemic Initiative.

School Implementation.

In collaboration with the Central District of the Houston Independent School District, we recruited two cohorts of three elementary schools to participate in the ECOS Project for four years. The first cohort, consisting of Wharton, Wilson and River Oaks Elementary Schools began implementation of MHMW and MWM units in grades 1–4 during school year 2003-2004. The remaining schools, Roberts, Poe and MacGregor Elementary Schools, served as comparison schools during 2003–2004, and will begin using ECOS-sponsored units in fall, 2004. These schools have agreed to participate in ECOS activities and data collection through the 2007–2008

school year. Four of the six schools have high enrollments (54–97%) of students from underrepresented groups (primarily African American and Hispanic) with 29–79% percent of students considered “at risk.”

Thirty six teachers from the first cohort of schools participated in project-related professional development (ECOS Institute), August 4–7, at the Children’s Museum of Houston. The institute provided an introduction to the environmental health sciences, inquiry-based science teaching, pertinent science content and how to conduct each of the activities in the MHMW or MWM unit to be implemented at the respective grade levels. Each teacher received a stipend, a complete class set of printed materials and a materials kit. During Fall, 2003, participating teachers taught a MHMW or MWM integrated environmental health science unit for nine to sixteen weeks. The following units were taught: Needs of Living Things (grade one); Water and My World (grade two); and My World Indoors (grade three). Approximately 860 students participated during the fall semester. For spring, 2004, fourth grade was added to project implementation and workshops on three additional units were presented to 30 teachers. Even though the teaching of a second environmental health science unit during the school year was optional for teachers, approximately 83% of the teachers at the three Cohort One schools elected to attend the second set of ECOS workshops and to teach another unit during the spring. During spring, the following units are being used: Resources and Environments (grade one); Food and My World (grade two); My Home Planet Earth (grades three and four).

Project evaluation, which is underway for this school year, is focused on the following.

ECOS Institute (formative assessment of the institute, teacher content gain).

School Implementation (change in teachers’ science teaching efficacy beliefs, teacher classroom interactions with students using the Stallings Observation System, change in teachers’ acceptance/adoption of the new program using the Concerns-Based Adoption Model Stages of Concern Questionnaire, student content knowledge as measured in pre/post assessments and student open-ended writing samples; student content knowledge also was assessed pre/post in the comparison schools).

Ratings of the quality of the professional development provided were extremely high, as can be seen in the ratings of the ECOS Institute below (1= strongly disagree, 5= strongly agree; N=36).
MeanSD

The institute treated teachers as professionals 4.70.9

I would recommend this program to my colleagues 4.70.7

I enrolled only because my principal asked me to 3.21.4

Lab instructors organized activities well 4.70.6

Lab instructors were knowledgeable 4.90.2

The information and activities presented will help me
teach more science and health than before 4.50.5

I will use more hands-on science and math with my
students after this institute 4.30.7

I appreciated having an opportunity to plan with my peers 4.11.1

I am looking forward to making changes in my own teaching 4.40.5

Teachers’ science content knowledge as measured by a multiple choice pre/post test increased significantly ($t = 11.219$, $p < 0.001$, Cohen's $d = 2.108$).

Project Generated Resources

Curriculum Materials

Tharp, B., P. Cutler and N. Moreno. 2004. Tillena’s Big Adventure. My World and Me Adventures. Carolina Biological Supply Company, Burlington, NC, 30 pp. In press.

Tharp, B., P. Cutler and N. Moreno. 2004. Resources and Environments. My World and Me Activities Guide for Teachers. Carolina Biological Supply Company, Burlington, NC, 34 pp. In press.

Other Publications

Moreno, N. 2004. Health and the Environment. In Decisions for Health, Holt Rinehart and Winston, Austin, Texas, pp 528–551 (student and teacher editions).

Roberts, J.K. and N. Moreno. 2003. Teacher Self-Efficacy is NOT Enough! The Problem of Interpreting Measures of Teacher Self-Efficacy Apart from Other Measures of Teacher Performance. Paper presented at the 2003 annual meeting of the American Educational Research Association, April 22 (Session # 29.025), Chicago, IL

Contact: Nancy Moreno or Barbara Tharp, Baylor College of Medicine, 713-798-8200, nmoreno@bcm.tmc.edu

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Integrated Environmental Health Middle School Project

Collaborating institutions and agencies:
 University of Washington (UW)
 University of New Mexico (UNM)
 R25 ES10738

Principal Investigator: David Eaton
 Co-Principal Investigators: Thomas Burbacher, Craig Marcus

Goals.

The overarching goal of the Integrated Environmental Health Middle School Project (IEHMSP) is to train educators in grades 6 through 8 to plan, implement and assess projects that use environmental health sciences as an integrating context for learning. The IEHMSP is facilitating ties between community stakeholders and classrooms. Through these partnerships, students learn first-hand that environmental health science (EHS) topics are relevant to a wide range of community groups, individuals, and decision-makers.

Participants.

In Washington State in the 2003-04 school year, the project moved beyond the three originally targeted school districts by extending teacher recruitment to “self-selected” teachers from across the state. Currently, fifty-five teachers from sixteen schools are actively involved, in the project. Participants represent grades 6-9 and span the following subject areas: Science, Mathematics, Language Arts, Social Studies, Technology, Communications, Library Media, and Health/Physical Education. The University of New Mexico has engaged 24 teachers in the 2003-04 school year from these subject areas.

Highlights: Materials

The project has completed an array of classroom materials that support integrative teaching of EHS across the disciplines at each level of the “EH Integration Pyramid.” At the highest level of integration, Level 4, students work with teachers from a variety of disciplines to identify and research their own community-based EHS projects. The HEART manual includes extensive materials to support these projects, including student project guidelines, topic suggestions, and project evaluation criteria. At Level 3, teachers select the EH topics rather than the students. “The Quicksilver Question” web module is a student-centered learning adventure that models the steps one might take when researching a place-based environmental health issue. The module explores the lingering effects of mercury contamination from historic gold mining in a fictional rural community. Level 2 of the integration pyramid describes classroom activities that use EHS topics to teach across multiple disciplines, but that are not strictly inquiry-based. With the help of teachers, project staff created the “EH Fact Files.” These print curricula include lesson plans for student activities in social studies, language arts, mathematics, and science as well as a resource list for librarians. Level 1 of the pyramid represents the most basic level at which teachers can incorporate EHS topics into their classroom; teachers act alone within their subject matter to make connections between EHS content and a topic they are already teaching. This level of classroom activity is supported with existing resources such as Tox-in-a-Box™, “EH Headlines” and student lab tours.

Highlights Students and Communities

- Health/Career Fair: 5th- 8th grade, Santo Domingo Middle School in New Mexico. Students attended a fair where they had the opportunity to see exhibits on environmental health and speak to a wide variety of health career professionals.
- Mock Environmental Hazard Inquiry Study: 8th grade, Mt. Baker Middle School in Washington. 120 students participated in an integrated unit on the impact of a mock-pesticide spill in the community. Students received training from outside experts, presented findings at a mock town meeting, and participated in related activities in four subject areas.
- Environmental Health Fair: 8th grade, Olympic View Middle School in Washington. 275 students prepared posters or Power Point presentations. The fair was a culminating event of a semester long multi-disciplinary environmental health curriculum which included persuasive papers in language arts class, speakers and field trips. Students visited the Burke Museum of Natural History and Culture as part of a University of Washington tour. The visit included lessons learned about toxins in tribal artifact preservatives related to repatriation.
- School Year 2003-04: Student pre-and post project surveys measuring EHS concepts, and attitudes about the integrative learning curriculum, are being seen through formal approval process in school districts and at home institutions.

Highlights: Teachers

- April 2003: UW staff traveled to three district sites for curriculum workshops on new materials: "EH Fact File: Lead" and "The Quicksilver Question" web module.
- 2003-04 school year: Teachers in New Mexico and Washington are piloting "The Quicksilver Question," HEART- integrated project-based research manual, "EH Fact File: Lead" and "EH Fact File: Asthma".
- School Year 2003-04: Independent evaluator and project staff developed and initiated implementation of teacher expectation and reflection surveys. The expectation survey is collected prior to classroom implementation of curriculum. The reflection survey will be collected from each participating teacher in Spring of 2004.
- January 2004: Teacher in the first and second cohort in New Mexico attended the Curriculum Workshop Materials workshop.

Highlights: Within School Districts

- April 2003: Project Evaluation Team was established and is comprised of a broad range of stakeholders who help guide program assessment and includes teachers and district administration. A collection of descriptive indicators for participating schools and districts was developed and collected to describe school populations.
- June 2003: UW staff joined the Science Assessment Leadership Team and is helping write future scenario-based, items for Washington State's standardized science test.
- August 2003: Teacher Workshop. A third cohort of Washington teachers joined the project and was introduced to core concepts of the environmental health sciences.
- School Year 2003-04: UW staff continue working with partner districts as they prepare to meet a new state graduation requirement 2007 in which all students must complete a "culminating project." The IEHMSP student project guidelines address most of the same skills that will be required of these students for graduation.

Publications

Bergsman, K. C., Sharpe, J., and Burbacher, T. (2003). Environmental Health Fact File: Asthma, Integrated Environmental Health Middle School Project, Community Education and Outreach Program, Center for Ecogenetics and Environmental Health, University of Washington. 194

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Bergsman, K. C., Sharpe, J., and Burbacher, T. (2003). "The Quicksilver Question" Web Module, Integrated Environmental Health Middle School Project, Community Education and Outreach Program, Center for Ecogenetics and Environmental Health, University of Washington.
Freeman, K. New IEHMSP Resource. Environmental Health Voices. 13(Spring) 2003
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Ginorio, A., Fournier, J, and Frevert, K. (2004) The Rural Girls in Science Program: Educational Leadership. Vol 61 no.5:79-83
Miller, E., and Sharpe, J. (2003). When youth lead. Yes!, 25:34-35.
Rudensey, L. A Case of Pesticide "Theft" and Groundwater "Contamination": Engaging Students in Environmental Health across Disciplines Environmental Health Voices. 14(Fall) 2003
Rudensey, L. A Case of Pesticide Terrorism-Engaging Students in EHS Across Disciplines. Science Scope In preparation
UWOnlineTechnologyNew, Integrated Environmental Health Middle School Project
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Community and Links Mount Vernon Schools (2003) Role-playing in the classroom-Mt. Baker students explore community hazard scenario. Spring 2003.pg.1

For more information on the Integrated Environmental Health Middle School Project, please visit the project website at <http://depts.washington.edu/iehms> or contact Katie Frevert, Project Manager, at kfrevert@u.washington.edu

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SUC₂ES₂ (Students Understanding Critical Connections between the Environment, Society and Self)

University of Medicine and Dentistry of New Jersey
R25 ES10697

Principal Investigator: Audrey R. Gotsch, DrPH, CHES, Dean, UMDNJ-SPH

SUC₂ES₂ is a seven-year project to develop a translatable model that uses environmental health (EH) as a theme for learning. The project is a collaborative effort involving the Woodbridge Township (NJ) School District; the University of Medicine and Dentistry of New Jersey-School of Public Health; the Environmental and Occupational Health Sciences Institute; the New Jersey State Department of Education; and the Graduate School of Education, Rutgers, The State University of New Jersey. Through SUC₂ES₂, Woodbridge Township School District educators and administrators are developing curricular materials that integrate science, math, health and language arts lessons under the umbrella of EH. Through the use of the SUC₂ES₂ materials in grades two, five and seven, students will increase their environmental literacy and be better prepared to become responsible and successful members of society. The project is in the middle of the fourth year of its implementation.

Much progress has been made at the second-grade level to help students explore the real environmental health problem of allergies and airborne allergens over approximately a ten-week period. The two-volume SUC₂ES₂ 2nd Grade Curriculum Guide, based upon the existing early elementary module of ToxRAP (Toxicology, Risk Assessment and Pollution), "The Case of the Green Feathers," has been developed, pilot-tested and is currently being implemented by 49 teachers in all of the district's 16 elementary schools. A qualitative research study found the process used to develop the model very effective. A quasi-experimental research study using a pre-test/post-test design is being conducted to determine the effectiveness of this integrated curriculum in increasing students' environmental health literacy and improving overall academic performance. The 2nd grade pilot-test results showed the treatment group had a mean percent increase in test scores of 45% versus an increase of only 5% for the controls. The pre- and post-test results for schools implementing the curriculum in school year 2002-2003 are still being analyzed. Special efforts are being made this year to look at test-retest reliability, scoring reliability and demographic factors that might influence the results.

A Working Group of 5th Grade teachers and administrators participated in training workshops last year to assist in the development of the SUC₂ES₂ 5th Grade Curriculum Guide using the successful development model followed in second grade. A writing summit over the summer of 2003 and fall follow up workshops resulted in a draft version that is currently being pilot-tested by 11 teachers in eight schools. Ten teachers and three schools are also being used as controls. The 5th Grade Curriculum Guide is based on the existing intermediate elementary module of ToxRAP, "What is Wrong with the Johnson Family?" Over the course of 10 weeks, students investigate a family being poisoned by carbon monoxide. As was done in the 2nd grade, pre- and post-tests are being conducted in implementation and control schools. Following revisions from the pilot-test, the 5th Grade Curriculum Guide will be implemented in eight district schools during the 2004-2005 school year, with district-wide implementation occurring during 2005-2006.

A similar approach to curricula development that was used for the 2nd and 5th grades is being used for the 7th Grade Curriculum Guide. During the 2003-2004 school year, seventh-grade teachers and administrators will participate in a series of all-day trainings and after-school sessions to prepare for the development of the curriculum guide. Four teachers in three schools are now using the ToxRAP curriculum "Mystery Illness Strikes the Sanchez Household" in their classrooms. This curriculum

involves a family exposed to lead dust from paint and will serve as the basis for developing the SUC₂ES₂ 7th Grade Curriculum Guide. In the summer of 2004, teachers will participate in a writing summit to develop the pilot-test version of the guide, which will be pilot-tested in district classrooms during the 2004-2005 school year.

Two presentations were made at professional meetings this year highlighting the project. A poster presentation was given at the North American Association for Environmental Education Annual Conference in Anchorage, Alaska on October 11, 2003 titled "Developing Integrated Environmental Health Curricula." Another poster presentation titled "Success with SUC₂ES₂" was given at the American Public Health Association Annual Meeting in San Francisco, California on November 19, 2003.



Learning through Environmental Health Science Scenarios: Hydroville Curriculum Project

Oregon State University
R25 ES10721

Hydroville, USA

Principal Investigator: Nancy I. Kerkvliet

Project Personnel: Kendra Mingo, Project Director; Molly Bloomfield, Curriculum Director; Sue Helback, Project Coordinator

Overview:

COEP is finishing the fourth year of the Hydroville Curriculum Project (HCP) dedicated to improving the science education and environmental health knowledge of high school students. To date, three of four environmental health science scenarios, the Pesticide Spill Scenario, Mysterious Illness Outbreak, and Indoor Air Quality Scenario have been revised, edited, and enhanced for use by Oregon pilot schools, and the development of the final environmental health module about groundwater pollution is underway.

Partners:

Oregon State University Environmental Health Sciences Center; OSU Marine/Freshwater Biomedical Sciences Center; OSU Science and Math Investigative Learning Experiences (SMILE) Program; Oregon Department of Education.

2003-04 Project Benchmarks:

- HCP hosted a Teacher Summer Institute in June 2003 and trained 10 teams of teachers (n = 29) in environmental health science, team teaching, problem based learning, and implementation of the Pesticide Spill Scenario module. Teachers worked directly with investigators from the EHS Center on activities centered on risk analysis/communication, analytical chemistry, environmental toxicology, mechanical engineering and soil science.
- Summary of Year 01 evaluations for Pesticide Spill Scenario are completed. Results from the Pesticide Spill Scenario pilot test demonstrated a statistically reliable effect of the module to positively influence students' attitudes, perceptions, and reasoning about chemicals in the environment and environmental toxicology. Students who participated in the Pesticide Spill Scenario adopted a more scientific perspective on the meaning of chemical exposure and how chemical risks should be managed.
- HCP staff worked with OSU faculty to develop hands-on toxicology, environmental sampling, environmental engineering, risk assessment, hydrogeology, and stakeholder activities for the Indoor Air Quality Scenario.
- HCP staff and the Curriculum Development Team adapted and enhanced the Hydroville Indoor Air Quality Scenario challenge problem into an integrated classroom module, incorporating additional scientific, math, language arts, and humanities content, and also aligned the Indoor Air Quality Scenario challenge problem with Oregon and national educational standards.
- Indoor Air Quality Scenario video is completed.
- EHS Center investigators and OSU faculty serve on a science advisory board to advise HCP on the goals and content of the Water Quality Scenario.
- SMILE Program high school teachers participate in training workshops from the Water Quality Scenario at the SMILE Program 2003 Fall Teacher Workshop and 2004 Winter Teacher Workshop.
- Pilot testing of the Water Quality Scenario will begin at the SMILE Program High School Challenge Event in April 2004.

- HCP staff is recruiting pilot schools to implement the Indoor Air Quality Scenario module in Oregon high schools in 2004-05.
- The HCP staff will train teachers in the use of the Pesticide Spill Scenario in July 2004 at the Environmental Health Sciences Summer Institute sponsored by the University of Texas MD Anderson Cancer Center.

Workshops and Presentations at Regional or National Meetings:

Bloomfield, M. 2003. "Curriculum Development Through Assessment – Measuring Problem Solving Skills in Hydroville Curriculum Participants" presentation to the Oregon Academy of Science Annual Meeting with OSU Department of Science and Math Education graduate students Karen Bledsoe and Angie Ruzicka, Pacific University. McMinnville, OR.

Bloomfield, M and K. Mingo. 2003. "Hydroville Curriculum Project: Mysterious Illness Outbreak – Gastroenteritis Outbreak in Oregon" one-hour workshop to teachers at National Association of Biology Teachers National Meeting. Oregon Convention Center, Portland, OR

Kerkvliet, N. 2003 "Why Toxicology for High School Students?" presentation to teachers at the Society of Toxicology Paracelsus Goes to School Workshop for Teachers. Salt Lake City, UT.

Mingo, K, S. Helback, S. Uesugi and N. Kerkvliet. 2003. "Paracelsus Goes to School Workshop for Grades K-12 Hydroville Curriculum Project: Mysterious Illness Outbreak" teacher workshop at Society of Toxicology Annual Meeting. Salt Lake City, UT.

Uesugi, S. and S. Helback. 2003. "Activities in Toxicology: Mold Control!" one-hour workshop to teachers at National Association of Biology Teachers National Meeting. Oregon Convention Center, Portland, OR.

Featured student activities:

Atmospheric Science & Chemistry Activities: OSU Environmental and Molecular Toxicology professor and EHS Center investigator Dr. Staci Simonich has received funding from the National Science Foundation to enhance development of the Indoor Air Quality Scenario as part of a National Science Foundation Early Career Award titled, "New Molecular Markers of Asian Air Emissions - Anthropogenic Semi-Volatile Organic Compounds." Dr. Simonich's NSF Early Career Award includes an outreach component to introduce students to: (1) concepts of indoor versus outdoor air quality; (2) concepts of air flow and atmospheric transport; and (3) simple measurement techniques for measuring and evaluating air quality. Dr. Simonich will serve as a mentor to pilot teachers and students using the Hydroville Indoor Air Quality Scenario module in 2004-05 and serves on the Hydroville Indoor Air Quality Scenario science advisory committee. She will also provide tours of her lab facilities and will provide equipment and materials for pilot schools participating in the program in 2004-05. In addition, a portion of her grant funds will be used to create web-based activities and purchase classroom equipment that relates specifically to air sampling and analysis.

Online Analytical Tools to Study Toxic Chemicals: The EHS Center is creating interactive online activities to highlight analytical technologies used in environmental health science research. The website, Unsolved Mysteries of Environmental Health Science, features analytical tools used in each of the four Hydroville Curriculum modules (e.g. gas chromatography, flow cytometry, spectrophotometry or colorimetry, and mass spectrometry). The first two online activities of the website will include interactive Flash diagrams outlining the basics of gas chromatography, mass spectrometry, and flow cytometry as well as interactive chromatograms and histograms to demonstrate data interpretation for each technique. The website also features background information for students about the immune system, immunotoxicology, fluorescence, cell structure, dioxin, volatility, air pollutants, atmospheric transport and

environmental chemistry. EHS Center Investigators Dr. Nancy Kerkvliet and Dr. Staci Simonich act as science advisors to the project.

Contacts

Kendra Mingo, Community Outreach and Education Program, Environmental Health Sciences Center, Marine and Freshwater Biomedical Sciences Center, Oregon State University, 119 Weniger Hall, Corvallis, OR 97331. Phone 541-737-8892. Fax 541-7379023. Email kendra.mingo@orst.edu.

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AMBIENT

University of Miami

Lisa Pitman Phd, Wendy Stephan MPH, Terry Pitman, Lora E Fleming MD Phd, Helena Solo-Gabriele Phd, Hilarie Davis PhD, Ken Goodman Phd, Pat Walsh Phd

NIEHS Marine & Freshwater Biomedical Sciences Center, Rosenstiel School, University of Miami, Miami, FL; Miami Dade County Public Schools, Miami, FL

Abstract

The AMBIENT Project (Atmospheric and Marine-Based Interdisciplinary Environmental Health Training) facilitates the involvement of teachers and students with research scientists and members of the community in an interdisciplinary approach to learning about local environmental health science issues. Based on the 4 environmental themes of air, water, soil, and food, a problem-based learning approach is presented to high school teachers during a teacher workshop. Additional curriculum has been created in Ethics and in Toxicology, as well as evaluation tools and State Standards, all available at the AMBIENT Website (www.rsmas.miami.edu/groups/niehs/ambient/).

Over the past 2 years, AMBIENT Investigators and teachers have become active participants in the ENVIROTHON. This is an annual nationwide high school environmental sciences competition which encourages in class and in the field hands-on learning of the environmental sciences. In addition to the AMBIENT Website, student teams explore prepared AMBIENT study materials, and then compete in a regional ENVIROTHON fair by visiting an AMBIENT booth with knowledge-based and hands-on testing on issues related to environmental health. Issues covered to date have included: soils and lead poisoning, arsenic and CCA treated wood, and mercury and human health. Winners of the Regional ENVIROTHON Competition will participate in the National ENVIRONMENTON Competition.

The ENVIROTHON offers a unique opportunity for educators to involve high school students in the study and practice of environmental health nationwide.

Ambient Activities for 2003-2004

The following is a summary of activities occurring during the 2003-2004 Academic Year:

AMBIENT Teacher Follow-Up Days

All AMBIENT Teachers are required to attend Follow-Up Days to the AMBIENT 2003 Summer Workshop. The Follow-Up Days are held at the University of Miami RSMAS Campus. The first part of each meeting is led by the AMBIENT Project Evaluator, who discusses strategies to use in the continued implementation of AMBIENT activities in the classroom. The second part of the meeting involves the 20 teachers who plan to attend two upcoming conferences (Society of Toxicology and NSTA). Discussion involves expectations of teachers representing AMBIENT at these conferences. Teachers also practice the various activities involved in their future presentations.

ENVIROTHON

AMBIENT will participate in this Environmental Science Competition among high school students. AMBIENT sponsors the Environmental Health Station at the competition, which takes place in the Everglades National Park. Packets of background materials were presented to students in December to prepare for the actual competition in March. The theme for this year's

competition is Urban Parks – the AMBIENT packet is entitled ‘Chemicals in the Park’. AMBIENT Researchers produced a packet of pertinent readings and websites involving the Basics of Toxicology, Lead Poisoning, CCA and Arsenic Contamination, and Mercury Poisoning. AMBIENT Investigators developed a 20-question test (made up of hands-on activities and questions involving reading comprehension and math skills) on which student teams are scored. Awards are presented to the team that scores the highest at the AMBIENT Environmental Health Station.

AMBIENT teachers participate in the Environmental Health Station along with AMBIENT Investigators. AMBIENT Teachers are also Sponsors of student teams involved in the ENVIROTHON Competition.

Society of Toxicology (SOT) Conference - Baltimore, Maryland

AMBIENT Investigators and 7 Miami-Dade County Public School teachers will participate in a Teacher Workshop, a Poster Session, a Hands-On Science Workshop, and staff the NIEHS Booth in the Exhibit Hall at the SOT Conference.

The Teacher Workshop: Paracelsus Goes to School

The main goal of the program is to enhance science education by incorporating multidisciplinary toxicology and environmental health science concepts into classrooms. Although this workshop is designed for area teachers, special arrangements were made so that Miami teachers from AMBIENT can participate in this workshop.

The Poster Session: The AMBIENT Project: High School Environmental Health Sciences Curriculum

The Hands-On Science Workshop: Novel Approaches to Engaging Toxicologists in K–12 Science Education and Outreach

NIEHS Health Education Projects and Toxicologists spotlight positive impacts of classroom visits, and provide SOT members with novel approaches, tools and resources that can be used to facilitate toxicology education in the K–12 setting. AMBIENT Teachers will present various activities from the AMBIENT environmental health curriculum during this hands-on workshop.

National Science Teachers Association (NSTA) Conference - Atlanta, Georgia

AMBIENT Investigators will accompany 12 AMBIENT Teachers as they participate in a Hands-On Science Presentation, and staff the NIEHS Booth in the Exhibit Hall at the NSTA Conference.

The Hands-On Science Presentation: How the Environment Impacts Human Health
Session participants will learn of the AMBIENT Interdisciplinary Curriculum detailing the contamination of Water, Food, Air, and Soil. All workshop participants will receive materials and be involved in hands-on activities.

AMBIENT Teachers are eligible to participate in these conferences because they have implemented at least one AMBIENT activity in their classroom and were involved in a school-site visit and observation by AMBIENT Investigators.

University of Miami RSMAS/College of Education Collaboration

Project SUCCEED

Project Title: Infusing Environmental Health Content into Elementary Pre-Service Teacher Education

Specific Objectives:

Infuse environmental health topics into the UM pre-service elementary preparation program by adapting AMBIENT project curricular materials

Provide pre-service elementary teachers with basic tools for implementing hands-on inquiry-based activities with their elementary grade students
Foster increased collaboration between science education faculty in the School of Education and science faculty at RSMAS

AMBIENT Investigators will present segments of AMBIENT curriculum modules during classes for pre-service elementary teachers. Students will work with AMBIENT Educational Specialists during additional class periods using AMBIENT module materials. The pre-service teachers will have the option to use AMBIENT Project materials as part of their teaching during the field experience portion of the course. AMBIENT Investigators will modify the most appropriate Ambient curricular materials from the current high school level to an upper elementary grade level based on the results of the spring pilot test. The College of Education will then infuse this module into future pre-service teacher courses.

University of Miami RSMAS/Royal Caribbean Cruise Lines Explorer of the Seas Collaboration

This collaboration using state-of-the-art technology to study the ocean and atmosphere provides an exciting new venue to increase the public's awareness and understanding of our planet. Equipped with a high-tech atmospheric and oceanographic laboratory, Royal Caribbean's Explorer of the Seas helps scientists discover answers to some of today's most significant questions in ocean and climate research. For the past three years, scientists, educators, or graduate students working on or holding an advanced degree in marine or atmospheric science have been participating in a weeklong cruise and leading the public education portion of the program. The participants are required to give two public oriented lectures (one provided) on a topic of interest to the general public. He or she must also help give tours of the labs and program aboard (about one hour a day) and give a short introduction to several films shown aboard.

We are currently working with Royal Caribbean as we identify criteria and create an application form to help us produce a list of Master Teachers who can experience this environmental research and educational opportunity during summer months.

AMBIENT/AUDUBON Environmental Justice Module

University of Miami scientists, including a marine geologist; an environmental engineer; and a historian, are currently working with AMBIENT Investigators to produce this new module. The module currently being developed involves issues of Environmental Justice - specifically at Virginia Key. The module will be divided into three sections: HEALTH (drownings/strong currents; location of sewage treatment plant; Brownfields), HISTORY (historically a Black Beach), and POLICY (plans to possibly develop the area even though it was donated with specifications that development never occur). This module will be included in The AUDUBON Society's Summer Program working with inner-city youth helping to raise awareness of environmental issues within the community.

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Problem-Based Learning for Environmental Health

University of Rochester
R25 ES10717

PRINCIPAL INVESTIGATOR:

Dina Markowitz, Ph.D., University of Rochester, Department of Environmental Medicine

PROJECT DEVELOPMENT TEAM:

David Hursh, PhD, Warner Graduate School of Education (Curriculum Development and Evaluation)

Camille Martina, MS Ed, Warner Graduate School of Education (Curriculum Development and Evaluation)

Peter Debes, MS (Curriculum Development)

Ellen Henry, PhD, Department of Environmental Medicine (Scientist Liaison)

Patricia Braus, MPH, Dept. of Community and Preventive Medicine (Science Writer)

Natasha Bell, MS Ed, Warner Graduate School of Education (Evaluation)

COLLABORATING INSTITUTIONS/AGENCIES:

University of Rochester School of Medicine & Dentistry, University of Rochester Margaret Warner Graduate School of Education and Human Development

DESCRIPTION OF PROJECT ACTIVITIES:

The "My Environment, My Health, My Choices" program facilitates the development, by middle and high school teachers, of new curricula that incorporate environmental health topics into science and non-science subjects. This project involves 3-member teams, composed of science and non-science teachers, from public and private urban, rural, and suburban middle and high schools from the Rochester, New York area. Each team develops curriculum units using a problem-based learning (PBL) format to focus on a local environmental health issue. Teacher teams participate in an initial week-long summer workshop and several workshops and meetings with the project team during each school year.

COLLABORATING SCHOOLS:

Phase I of the project (2001-2004) involves four teams of high school teachers. Phase II (2003-2006) involves seven teams of mostly middle schools.

Curriculum unit topics of Phase I schools:

- East High School (Rochester City School District): Urban air pollution and asthma
- Marion High School: Rural water quality
- Rush-Henrietta High School: Pesticide exposure
- Webster High School: Indoor air pollution

Curriculum Unit topics of Phase II schools:

- Allendale-Columbia School: Acid rain
- Bishop Hogan Catholic Academy: Lead poisoning
- Laurelton-Pardee Intermediate School: Water quality
- Monroe #2 Board of Cooperative Educational Services Alternative School: Water quality
- Monroe Middle School (Rochester City School District): Water quality
- School Without Walls (Rochester City School District): Air pollution
- Seneca Falls Middle School: Water quality

Evaluation of the four teams participating in Phase I of this seven-year project allowed us to identify program successes and issues of concern, and enabled us to re-structure certain aspects of our program design. The evaluation included surveys, focus groups, interviews and classroom observation. Our evaluation indicated the need to overcome the difficulty in finding common curriculum planning time, meet challenges of interdisciplinary teaching within the current school structure, and solve teacher concerns about using a PBL curriculum in courses with standardized testing and state-required curricula. We also noted the need for clarity of goals and outcomes for the teachers.

As a result of the evaluation, we modified certain aspects of the program, including implementing a more rigorous process to select teachers who are open to changing their classroom routine and who have strong administrative support for their participation in this project. The initial week-long training for teachers was altered from a predominantly lecture format to a hands-on workshop for Phase II teachers, which was held in Summer 2003. The Phase II teachers participated in PBL exercises and used a curriculum development template to write initial drafts of their environmental health units. We also provided teachers with examples of how to use environmental health lessons to meet educational standards. We are currently evaluating the seven teams in Phase II of the project to assess the success of the changes that we made.

PROJECT PUBLICATIONS:

Martina, C, Hursh, D, Markowitz, D, Hart, K, and Debes, P. Contradictions in educational policy: Developing integrated problem-based curriculum in a high stakes environment. Paper presented at the annual American Educational Studies Association Conference. Mexico City, Mexico, October 30, 2003.

The project newsletter, Choices: Bringing Environmental Health into the Classroom, is published twice each year and distributed to local educators.

Additional information about this project is available online at:

<http://www2.envmed.rochester.edu/envmed/EHSC/outreach/myenvironment.html>

Biosketches

SHARON CHRISTOPHER WYLIE

Sharon Wylie is the Public Affairs and Marketing Manager of FOX 45 and WB 54. In this position, she has developed programming, projects, and special events building partnerships between the television stations, local businesses, and non-profit organizations to address community needs.

During her twenty-seven years at WBFF, Sharon Wylie has developed such campaigns as “Partners in Education”, “Operation Prom”, “Champions of Courage”, “Teens and Television”, “The FOX 45 Safety Patrol”, “Men’s Healthline”, and “Your Right to Know”. An Emmy Award winner, she has been saluted for excellence in children’s and public affairs programming by the Capital Region of The National Academy of Television Arts and Sciences, The Association of Independent Television, The FOX Broadcasting Company, The National MADD Organization, The Society of Professional Journalists, The Associated Press, and the Maryland Campaign for Children’s Television.

Sharon Wylie is a Baltimore native, a graduate of Western High School, and a Summa Cum Laude graduate of Towson University where she received Bachelor of Science degrees in History, Social Sciences and Secondary Education. A former teacher, she now uses television as her classroom to entertain, educate and empower viewers to live more informed, better lives for their families and communities.

Active in the local community through professional and volunteer commitments, Sharon Wylie serves on the Advisory Board of the South Baltimore Learning Center and Board of Directors of The Franciscan Youth Center and The Coalition to Prevent Skin Cancer in Maryland. She is a Den Mother for the Cub Scouts and chairs Youth and Education Committees for Gary Memorial United Methodist Church.

MERRIE STREET

Merrie Street, Director of Governmental and Community Relations for Harford County, appointed October 2001, is a graduate of Bel Air High School and the University of Oklahoma. Ms. Street spent more than 25 years as an award winning journalist, beginning her career at WVOB in Bel Air, and later, serving as News Director at WPOC and WLIF in Baltimore. Street was Bureau chief, starting the news package for what was then Metro Traffic in Baltimore. She also spent part of her career as a congressional press secretary for former U.S. Representative Helen D. Bentley on Capitol Hill. She has served on the adjunct faculty at Towson University and is currently on the adjunct staff at Harford Community College teaching Introduction to Electronic Media. And, she still serves as wife of 28 years to husband Scott, and mom to kids... okay, young men, Michael and Marc.

JONATHON BOR

Jonathan Bor has been covering health and medicine for the Baltimore Sun for the past 15 years. He writes about developments in medical research and the treatment of diseases ranging from cancer and AIDS to heart disease and diabetes. He also has a particular interest in mental health, public health and medical ethics, as well as the new frontier of stem cell research. Before coming to Baltimore, he worked for newspapers in upstate New York, covering a variety of beats.

LOU ROZIER

As the NIEHS Public Liaison Officer, Lou has responsibility for providing input to the NIH Director’s Council of Public Representatives (COPR); contributing to the monthly NIH Public News Bulletin; encouraging public participation in clinical trials, in advisory bodies to NIH, and in other activities. She is also responsible for managing content on the NIEHS external website, which includes keeping the site updated and reviewing the site for overall effectiveness as well as responding to public inquiries that come into the site. Another responsibility is the production of videotape packages in both English and

Spanish that communicate the Institute's programs and objectives to outside audiences. This includes Public Service Announcements, which run on television, cable and satellite stations throughout and even outside the US. Lou is currently participating on an interagency committee at NLM to develop a database for consumers on Toxicology and Environmental Health Information.

Lou has worked for the Federal government since graduating with a BA in foreign languages in 1973. Assignments have included such agencies as the former US Office of Education, NASA's Goddard Space Flight Center, the US Environmental Protection Agency, and for the past 22 years, the National Institute of Environmental Health Sciences. Lou is a graduate of the US Office of Personnel Management's Executive Potential Program, where she completed rotational assignments at the NIH Office of the Director, Office of Science Policy and Legislation, working on science education; Wake Forest University's Bowman Gray Medical School developing a conflict of interest policy for employees of the medical school, and a shadowing assignment with former Secretary of Labor, Elizabeth Dole. Lou is married to a Certified Professional Picture Framer and she and her husband live in Pittsboro, NC.

HELENE JENNINGS

Helene Jennings is a technical director, specializing in evaluation at ORC Macro International for more than a decade. She leads an evaluation team of research associates and analysts with classroom and evaluation experience to measure results of a range of educational initiatives. She has conducted quantitative and qualitative research studies in a broad array of social service and education programs. She has also been a classroom teacher in the United States and abroad.

Ms. Jennings currently directs several projects that involve infusion of technology into the curriculum or the provision of professional development to insure that inservice and preservice teachers are prepared to effectively use technology to improve student achievement. These projects, carried out for the U.S. Department of Education, include a Technology Innovation Challenge grant, a PT3 grant, and the Maryland Digital Schools project (under a Stars Schools grant). Under her direction, the Macro evaluation team is assessing a reading intervention using treatment and comparison groups in middle schools in two Maryland school districts as part of a Ready to Teach grant. Ms. Jennings has also been responsible for a multi-year training and technical assistance contract with the U.S. Department of Education to strengthen evaluation at the national and grantee levels for the Preparing Tomorrow's Teachers to Use Technology (PT3) program.

ANTHONY FOWLER

As Interagency Coordinator at the US Department of Education, he serves as the liaison to federal agencies that have education responsibilities. He is in charge of the Federal Interagency Committee on Education, a group of 20 or so federal agencies that have such responsibilities. The committee meets monthly to discuss various education issues and our primary product over the past several years has been an inventory of federal education programs.

He has just completed his first year as the ED coordinator for Excellence in Science, Technology, and Mathematics Education Week. In that capacity, he worked with federal and non-federal agencies to plan activities for the week, oversaw the development of the ESTME week poster, assisted in development of the ESTME.org web site and has served as a spokesperson for the Department of Education on SME issues.

He is also the U.S. Department of Education representative on a variety of working groups, commissions, including the Centennial of Flight Commission, the Federal Working Group on the Lewis and Clark Bicentennial, the U.S. Army Youth Education Action Working Group, and the Department of Interior Education Working group.

TONY BECK

Is the program officer at the NIH, National Center for Research Resources, where he oversees the Science Education Partnership Awards program, among other programs. He has been with NCRR since 2002. Prior to working with NCRR, he was at the National Institute for Alcohol Abuse and Alcoholism (NIAAA) and did some work in biotech.

BRUCE FUCHS

Dr. Bruce A. Fuchs—an immunologist who did research on the interaction between the brain and the immune system—is currently the Director of the National Institutes of Health's (NIH) Office of Science Education (OSE). Dr. Fuchs directs the creation of a series of K-12 science education curriculum supplements that highlight the medical research findings of the NIH. The supplements are designed to meet teacher's educational goals as outlined in the *National Science Education Standards* and are available free to teachers across the nation. The office is also actively creating innovative science and career education Web resources that will be accessible to teachers and students with a variety of disabilities.

Prior to coming to NIH, Dr. Fuchs was an active researcher and teacher at the Medical College of Virginia, with grant support from both the National Institute of Mental Health and the National Institute on Drug Abuse. He has a B.S. in Biology from the University of Illinois and a Ph.D. in Immunology from Indiana State University. Dr. Fuchs has organized and participated in numerous science education outreach efforts directed at students, teachers, and the public. He believes that scientists should play an active role in communicating their research progress and findings with the community. Dr. Fuchs has organized more than a dozen "Mini-Med School" and "Science in the Cinema" programs for the public and the Congress since his arrival in Washington.

ANNE SASSAMAN

Dr. Sassaman is the Director of the Division of Extramural Research and Training, National Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health. She received a B.S. in Chemistry (with highest honors) from Auburn University and a Ph.D. in Microbiology-Immunology from Duke University. She continued her training in the Departments of Biochemistry and Medicine (Cardiology Division) at Duke Medical School and was a Research Assistant at that institution. She began her career in the Federal government as a chemist in the Bureau of Biologics, Food and Drug Administration, moving to the Blood Diseases Branch, Division of Blood Diseases and Resources, National Heart, Lung and Blood Institute, National Institutes of Health, in 1976.

She joined the staff of the NIEHS in her current capacity in 1986, and has led the development of the extramural program of the Institute through a period of significant growth in terms of dollars and personnel as well as program diversity. Under her guidance, the Institute has taken a leadership role in the NIH in areas such as environmental justice, children's health and community-based prevention and intervention programs. She also led the Institute's establishment of two new programs created by the Superfund Amendments and Reauthorization Act of 1986 (SARA): the Superfund Basic Research Program and the Hazardous Waste Worker Training Program. Her Division has developed innovative trans-NIH and interagency programs and has worked collaboratively with other agencies in management of Congressionally-mandated initiatives such as the EMF RAPID program and the Department of Energy (DOE) program for training of clean-up workers at DOE facilities. She serves on a number of NIH-wide committees involved in policy and program development and received a second NIH Director's award for her work in support of career development of women scientists. She currently co-chairs a Federal Interagency Working Group on Particulate Matter, part of the White House Office of Science and Technology Policy's Air Quality initiative.

Her NIEHS responsibilities include oversight and management of the Institute's peer review, grants administration, and research contracts administration activities. She interacts with scientists, science administrators, and policy-makers throughout the country and is the spokesperson regarding policy and priorities related to the extramural program of the Institute.

JASON LAZAROW

Mr. Lazarow is the program administrator for the NIAAA science education program. He brings with him the experience of having been a teacher for several years.

FINBARR (BARRY) SLOANE

Dr. Sloane is a visiting scientist with the Division of Research, Evaluation and Communication (REC) at the National Science Foundation. He is the primary program director for the Interagency Education Research Initiative.

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Appendix I



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Journal submission guidelines

1. Journal of Environmental Health

Submission Procedure

Submit the following via e-mail:

COVER LETTER INDICATING

Exclusive submission of the manuscript to the *Journal of Environmental Health*,
Title of the manuscript,

Names of all authors (including credentials), and

The corresponding author's name, title, affiliation, street address (**no P.O. boxes**), phone and fax numbers, and e-mail address. If applicable, please include alternate contact information for use during long periods of absence, e.g., summer and winter vacation.

ONE ELECTRONIC COPY of the manuscript with all files saved on a PC platform. We prefer to receive manuscripts as e-mail attachments; if this is not possible, please send on disk or CD. **AUTHORS ARE ENCOURAGED TO SUBMIT TABLES, FIGURES, AND PHOTOGRAPHS** that facilitate understanding of the text. High-quality digital images will be considered for possible use on the outside front cover of the *Journal*.

Manuscript Format Requirements

GENERAL

Text: Double-spaced type with 1-inch margins in Microsoft Word. Font: 12-point Times New Roman. Please use this font for all material in the paper, including titles and headings. If the paper contains subheadings, they can be distinguished with Bolding; sub-subheads can be distinguished with *Italics*.

Short, succinct titles aid reader comprehension and are strongly recommended.

Technical manuscripts should be divided into standard sections designated as abstract (approximately 150 words in length), introduction, methods, results, discussion, conclusion, acknowledgements (optional), and references. Pages must be numbered consecutively beginning with the title page. *Preferred* length of manuscripts is 3,000 words.

Guest commentaries will be considered at a preferred length of 800-1,600 words. Submissions suitable for publication as guest commentaries may rely less heavily on technical/formal research and tend more toward the expression of new ideas, opinions, or suggestions.

Acknowledgements (Optional)

The author should acknowledge only people and institutions that have made significant contributions to the study. If an acknowledgement section is included, it should appear after the conclusion section and prior to the references section. Acknowledgements should include contributions that need acknowledging, but that do not justify authorship, such as: general

support by a departmental chair, technical help, financial and material support (specify the nature of the support), and relationships that may pose conflicts of interest.

REFERENCES

Under no circumstances will a manuscript be accepted for publication if the references are not formatted according to these instructions. Please pay special attention to this section.

Identify citations in the main text of your article by providing identifying author-date information in parentheses. *Example: The study showed a positive correlation (Tinker, Tailor, Soldier, & Sailor, 1999), which suggests....* Please note: If the source has fewer than six authors, you must list the names of all the authors the first time you cite the source (as in the example above). Use an abbreviated author list only on subsequent mentions (or if the source has six authors or more). *Example: (Tinker et al., 1999).* Please also note that when multiple sources are cited within one set of parentheses, those sources should be arranged alphabetically by first authors' last names. *Example: (Kramer & Kramer, 2001; Tinker, Tailor, Soldier, & Sailor, 1999).*

The *Journal of Environmental Health* now uses the author-date system for citations (instead of the numbered-note system previously used). In general, the list of references at the end of the article should follow standard scientific citation style as described in the *Publication Manual of the American Psychological Association* (APA style), with the following exceptions:

Italicize rather than underline the titles of books and journals. *Example: Wood, W.W. (1976). A hypothesis of ion filtration in a potable-water aquifer system. Groundwater, 14, 233-244.*

Do not insert spaces between initials in authors' names. *Example: Horstman, S.W. (not Horstman, S. W.)*

Do not abbreviate the title of any serial publication, not even a government publication. *Example: Federal Register (not Fed. Reg.)*

Do not use APA style for citations to electronic or Internet sources. Instead, follow the guidelines for "scientific style" given in the *Columbia Guide to Online Style*. *Example: U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition. (1999). A state of the art approach to food safety. <http://vm.cfsan.fda.gov/~lrd/bghaccp.html> (25 Apr. 2000).* (The first date refers to the document date or date of publication, and the second date refers to the date you found the source on the Internet.)

If you are citing an article from an online periodical, insert the title of the periodical, in italics, after the title of the article.

Include as many details as possible in references to electronic or Internet sources--e.g., always include document or report numbers and authors' names, when available.

Be prepared to defend all electronic or Internet references.

All references should be current and readily available to readers of the Journal, and they should be published. Personal communications or unpublished materials are not recommended as references.

Do not use any abbreviations within the references section, not even for the titles of well-known periodicals. *Example: Journal of the American Medical Association* must not be listed as *JAMA*.

The references list at the end of your article should be alphabetized according to leading authors' last names. Do not number the references. *Example:*

Eliot, T.S. (1944). *Four quartets*. London: Faber and Faber.

Horstman, S.W., Drake, J.D., & Kazmers, A. (1994). *Glove perforations during vascular surgery*. *Journal of Environmental Health*, 56(8), 29-32.

U.S. Department of Justice, Law Enforcement Assistance Administration. (1970). *Criminal justice agencies in Pennsylvania*. Washington, DC: U.S. Government Printing Office.

Tables

Each table must be numbered consecutively in the order of its initial citation in the text.

Each table must be saved as an **individual** document in Microsoft Word (not as a picture or embedded object within the text).

Each table must be constructed in the simplest format possible, in black and white, with 12-point Times New Roman font and with clear divisions between each cell. If and when the manuscript is accepted for publication, the tables will be reformatted by the Journal of Environmental Health's graphic design staff.

Figures

Each figure must be digitally created in black and white, or grayscale, with 12-point Times New Roman font wherever possible. Freehand or typewritten lettering is unacceptable.

Acceptable programs: Excel, Pagemaker (PC), Quark, Photoshop, and Illustrator.

Acceptable image formats (created from original documents and saved at 100% of final printed size): PDF (600 dpi with embedded fonts and without compression), JPEG (300 dpi), PS (600 dpi at Postscript Level 2), EPS (300 dpi for grayscale, 800 dpi for black and white), PIC, TIFF (600 dpi), and CGM.

Unacceptable image formats: BMP (bitmap) and Powerpoint files.

One set of high-resolution, black-and-white originals must be provided with the manuscript submission.

PHOTOGRAPHS

Subjects within photographs must be clear and sharp, and large enough in proportion to the rest of the photograph to be visible when the photograph is reduced for publication.

Photographs may be submitted as prints, slides, or high-resolution JPEGs in black and white or color. Color prints should be at least 3x5 inches in size, and no larger than 8x10 inches. Do not mount or bend prints.

Authorship

All persons designated as authors should qualify for authorship. Each author should have participated sufficiently in the work to take public responsibility for the content. Authorship credit should be based only on substantial contributions to: (1) conception and design, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) the final approval of the version to be published. Conditions 1, 2, and 3 must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. General supervision of the research group is not sufficient for authorship.

Editorial Review

The editors of the *Journal of Environmental Health* initially review manuscripts for publication according to their significance and relevance to the readership. Once judged significant and relevant, each manuscript goes through a peer review process consisting of a critique by two *Journal* reviewers and a final evaluation by the technical editor and possibly the Technical Editorial Advisory Board. Authors are informed of pertinent comments and recommendations by the reviewers, and may be asked to revise or rewrite the paper prior to acceptance for publication. In order to preserve the integrity of the *Journal's* review process, we encourage all reviewers to be extremely candid in making their comments. In the event that an author disagrees with suggestions from the reviewers, we invite the author to respond by explaining his or her reasons, which are respectfully considered.

Reviews generally are completed within three to six months, and publication is scheduled for the soonest and most appropriate issue possible. Typeset copy proofs are sent to the corresponding author prior to publication for proof correction and assignment of copyright. *The Journal of Environmental Health* reserves the right to edit for clarity, organization, style, or space.

Where to Send Manuscripts

Please send manuscripts **by e-mail** (or by mail) and direct any questions, comments, or concerns to Joanne Scigliano, Journal Coordinator, National Environmental Health Association, 720 S. Colorado Blvd., Ste. 970-S, Denver, CO 80246-1925. Phone: (303) 756-9090, ext. 314; fax: (303) 691-9490; **e-mail: jscigliano@neha.org**

2. Eisenhower National Clearinghouse (ENC)

Content of Articles

Articles submitted for consideration should be grounded in the national educational standards while being short (500 to 2,000 words) and compelling. It is essential that articles promote educational equity and advance the principle of "education for all."

We particularly invite teachers to write about their classroom experiences, using first person and a conversational tone. Please note that library research papers written in academic language for graduate school courses are unlikely to be selected for publication. We do, however, encourage you to include a few, carefully chosen references or a brief reading list. All content must be original, and all quotations must be properly cited.

ENC is not interested in publishing articles that have the main goal of promoting commercial products.

Photographs and Illustrations

Photos or other illustrations add interest, and good illustrations increase your chances for publication. Photos should show teacher and students involved in an activity rather than looking directly at the camera. Students in laboratory settings must be shown following appropriate safety guidelines and wearing proper safety attire, including eye protection. Please select photos that depict diverse students and teachers working together.

Please note that we can use photos of children under 18 years of age only if we receive written permission signed by a parent or guardian. It is important that the form specify that permission is granted for use of the image on the Internet as well as in print. ENC will provide permission forms on request.

Photos, slides, negatives, drawings, or charts may be mailed to the editor. We prefer color, but black and white photos are also acceptable. Photos should be at least 4x6 inches. Tape an identifying label on the back of each item rather than writing on it. Photos and other illustrations or materials will be returned only on request. Keep in mind that we will not be able to return any material until after the magazine is published.

If you would like to use a digital camera, please take photos at your camera's highest setting, which may be 1024x768 or 1240x960. You can then attach those photos to an email or send them to us on a disk. Scanned images need to be at least 300 dpi; the dimension of the image should be at least 4x6 inches. Save the images as jpeg files. Digital photos printed on photographic paper with an ink jet printer are not acceptable because the resolution is inadequate for reproduction.

Submission Details

Authors of unsolicited manuscripts are urged to send a brief proposal via email. Proposals should explain how the article serves the needs of K-12 teachers.

We prefer that manuscripts be submitted electronically. A Microsoft Word or text file attached to an email message works well. Manuscripts can also be submitted by fax or regular mail. Paper submissions must be typed in a large, clear font; this is especially important for those sent by fax.

Each manuscript must be accompanied by the full names, postal addresses, telephone numbers, and email addresses of all authors. In addition, each author must be further identified with one or two sentences providing the author's professional affiliation and background.

We cannot consider manuscripts that have been submitted elsewhere. Occasionally we reprint outstanding articles that have been previously published. Authors suggesting their own articles for reprint must provide written permission from the original publishers.

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The Editing Process

Your proposal or manuscript will be acknowledged as soon as possible after it is received. Inclusion of your email address greatly speeds this response.

Please keep in mind that just because an article has been acknowledged does not mean it has been accepted for publication. It may take several months for us to make a decision about whether a particular article will be published online.

All articles, solicited and unsolicited, are reviewed by ENC's mathematics and science education experts both before and after they are edited, and edited articles are reviewed by officials at the U.S. Department of Education. At any step in this process, ENC reserves the right to decline to publish any article or to delay publication until a later date.

Please keep in mind that only a few of the articles published online will be selected for *ENC Focus Review*, the print companion to the magazine.

During the editing process, you may be contacted to answer questions about your article. Before publication, you will receive an edited version of your article the edited for your approval. At this point we need an immediate response, even if the article is correct to publish as edited.

Articles may be changed significantly to suit the interests of our audience, to meet the needs of the online medium, or to match our style. Articles selected for the print magazine may be edited further to fit into the space available. We want the edited version to be factually correct and to express your views accurately, but ENC retains the right to make final editing decisions.

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You will be informed via email the week the link to your article is featured on ENC's home page. You will also receive the URL that will always take web site visitors to your article. In the email, you will be asked to confirm your postal address so we can mail you printed screen shots of your article as it appears on the web site.

If your article appears in *ENC Focus Review*, you will receive five print copies. Requests for additional copies will be filled while supplies last.

For More Information

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3. Journal of Science Teacher Education (JSTE)

Authors who are not members of the Association for the Education of Teachers in Science (AETS) will be assessed a review fee of US \$50.00 per article. Nonmembers may avoid this fee by joining AETS prior to their manuscripts being reviewed. Information and applications for membership can be obtained from: Dr. Jon Pedersen, AETS Executive Secretary, The University of Oklahoma, College of Education, 820 Van Vleet Oval ECH 114, Norman, OK 73019, (405) 325-1498, Email: pedersenj@ou.edu

When submitting manuscripts, include the following:

A cover letter stating the title of the manuscript and the author's complete name, mailing address, email address, and telephone number.

The cover letter should also indicate whether the manuscript is to be reviewed for a Feature Article or for the Innovations in Action, or Model Programs Section.

A separate title page on the manuscript.

A separate abstract page.

The first page of the text of the manuscript must also include the title of the manuscript. Five copies of the manuscript. Copies must be typed, double spaced, and on 8¹/₂ by 11 inch paper.

A stamped #10 (4 1/8 x 9 1/2) or #9 (3 7/8 x 8 7/8) self-addressed envelope. International contributors need not provide postage.

Tables and graphics must be submitted as close to camera ready as possible, and should be in the actual text to ease reading (NOT at the end, as is often the case).

Publication Manual of the American Psychological Association (5th ed.)* must be followed when writing the manuscript.

Computer disks of the manuscript are NOT required. Emailed attachments can only be accepted when a manuscript passes the review process and is accepted for publication. This will be handled on an individual basis among the author(s) and the editors.

*Tolerance will be shown for those experiencing APA transition disorder - particularly during 2002.

Unlike many journals, we do not have strict periodic deadlines. You need not use expensive overnight delivery services (UPS or Fed Ex). Manuscripts can be U.S. mailed to:

JSTE Editors
Center for Math/Science Ed. Research (Enderis 267)
P.O. Box 413
Milwaukee, WI 53201
U.S.A.

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Milwaukee, WI 53211
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JSTE Editors

Manuscripts should not have been previously published nor be under consideration for publication in any other journal.

Review Process

All received manuscripts undergo the following process:

The editorial staff scans each manuscript to make sure the submission is complete and appropriate for JSTE. (If incomplete, we contact the author for the missing components. If inappropriate for JSTE, we return the submission with a suggested venue)

The editorial staff scans each manuscript to make sure the submission is complete and appropriate for JSTE. (If incomplete, we contact the author for the missing components. If inappropriate for JSTE, we return the submission with a suggested venue)

Reviewers whose expertise includes the topic of a manuscript are chosen from our review board (and occasionally from a pool of guest reviewers)

Copies of the manuscript (without author names) are sent to the three reviewers who typically have one to two months to complete the review. If a reviewer recognizes a particular manuscript they may return the manuscript to us to be sent to another reviewer. This takes additional time. Bear in mind that while our reviewers are gifted professionals, they are also human beings.

Upon receiving all three reviews (most electronically, some via regular mail, some from overseas), one of our two editors-in-chief reads the manuscript and reviews and makes a decision and suggestions.

The editorial staff completes the formal decision/feedback letter and mails it to the author along with the reviews and a copy of the manuscript if available.

Having read these steps, you can see that making accurate turn-around time predictions is difficult. We are not pleased that we have occasionally taken almost a year for a full review process. We do appreciate your patience and understand your concern for your manuscript.

4. The Science Teacher (NSTA)

What to submit and writing tips

Effective inquiry activities that are original and creative

Integrated science experiences

Successful partnerships or programs

Themes of current issues in science education

In your article, share the complete experience, including what you did, what worked, and what didn't. When describing an activity, identify its place in the curriculum, the appropriate grade level, assessment techniques, and any safety considerations. Include how the activity addresses current science standards. Tell us what students were wondering about that led you to conduct the activity. What did students say as they conducted the activity? What changes will you make to the activity in the future?

When describing a successful partnership or program, give complete details. How was the program set up? Why was it begun? What are its goals? What were students' reactions as they participated? With these suggestions in mind, you may soon be among *The Science Teacher's* published authors.

What about copyright?

NSTA will hold the copyright to your article in order to facilitate reprinting and republishing in the future. However, if you wish to have your article reprinted elsewhere, you need to secure permission from NSTA and include a credit line on the first page of the reprint.

Manuscript presentation

Your manuscript should not exceed 2,000 words. Longer manuscripts may be returned for revision without being reviewed.

Include a 50-word abstract of your article.

SI (metric) units should be used throughout the article.

Tables, graphs, and charts should be appropriately labeled.

Bibliographies and resource lists should be alphabetized and limited to current, readily available items.

Photographs

When taking photographs for the journals, students in laboratory settings must be shown following appropriate safety guidelines and wearing proper safety attire, including full-wrap, splash-proof goggles. Students' faces should be visible, but they should not look directly at the camera. If a photograph is used, a signed model release will be required of each student pictured.

How to submit

Manuscripts should be submitted electronically through our website at authors.nsta.org. Once at the site, follow the steps for New Author Registration. To submit your manuscript, you will first

need to save it as a Word document in PC format. Please choose a file name based on the title or content of your manuscript, not on the author's name or school, and do not include a cover sheet as part of the file. These steps are to protect authors' identities as a manuscript moves through our blind, peer-review process.

All graphics should be scanned and embedded in the document. When embedding a document, please only use low-resolution files (72 dpi). If we decide to use the images in print, we will contact you to obtain high-resolution (300 dpi) versions of the files, or hard copies of the graphics that we can scan in at high resolution. If you are unable to embed your graphics, you can submit hard copies by mail to the address below.

If you have any problems using our website to submit a manuscript, you may email a copy to mrc@nsta.org directly or submit a copy by mail. If you send your manuscript by mail, please include a hard copy on disk. Send your materials to:

The Science Teacher

Manuscript Review Coordinator

1840 Wilson Blvd.

Arlington, VA 22201-3000

If you have any questions about the submission process, please contact the Manuscript Review Coordinator at (703) 312-9382 or mrc@nsta.org.

The American Biology Teacher (ABT)

Manuscript Selection Criteria

1. Information in the manuscript must be useful to biology teachers at the elementary/middle school, high school, or introductory college levels.
2. The manuscript must contain **original material that has not been published** elsewhere.
3. The manuscript should be organized logically and coherently; the writing style should be clear.
4. Illustrations, such as photographs, line drawings, graphs, and tables, should be included with any manuscript to which they add clarity or increase reader interest.
5. Limit manuscripts to 4,000 words (or 16 typewritten, double-spaced pages), including references and excluding illustrations. We usually prefer short, concisely written articles.
6. Format specifications should be followed carefully.
7. Manuscripts should align with National Science Education Standards and their focus on inquiry-based learning.

Format

- The title of your manuscript should be a descriptive but *concise* invitation to read further.
- A good introductory paragraph captures the reader's attention (and that of the manuscript reviewers as well). Your introduction should highlight the major points you intend to make in subsequent paragraphs. Please include a 50-word abstract of your article for our web site listing.
- Not all articles in *ABT* contain subheads, but it is helpful to include them in any manuscript longer than five pages. Whether or not your subheads are used, they will be helpful to you, to our reviewers, and to our editorial staff in evaluating the organization of materials. Like titles, subheads act as labels and as invitations to read further.

- For the text body of the manuscript, do not use tabs or another type of formatting, other than proper capitalization and punctuation, italics, and double-spacing between paragraphs.
- Most articles need formal conclusions. The context of this section will depend on the topic of the article. In many cases, suggestions for implementing ideas are more useful than summaries.
- List references in alphabetical order at the end of your article on a separate page. References must be complete and in *ABT* style. The following examples illustrate *ABT*'s style format:

(To list a magazine or journal article)

Raham G. (1986). Pill bug biology: A spider's spinach but a biologist's delight. *The American Biology Teacher*, 48(1), 9-16.

(To list a book)

Hutchinson, G.E. (1962). *The Enchanted Voyage and Other Studies*. New Haven, CT: Yale University Press.

(To list an article in an edited book)

Popper, K. (1980). Science: Conjectures and refutations. In E.D. Kemke, R. Hollinger & A.D. Kline (Eds.), *Introductory Readings in the Philosophy of Science* (pp. 19-34). NY: Prometheus Books.

(To list a web site)

Roberts, L., Davenport, R.J., Pennisi, E. & Marshall, E. (2001). A history of the Human Genome Project. *Science*, 291: 1195. Available online at:

<http://www.sciencemag.org/cgi/content/full/291/5507/1195>.

(Cite in-text references in the following manner)

"Blue-green algae have the simplest nutritional requirements of any known organism" (Keeton 1973).

(or)

Keeton (1973) has noted that "blue-green algae have the simplest . . ."

For more guidelines on preparing references, see the *Publication Manual of the American Psychological Association*, 4th ed. (2001).

- Hardcopy submissions of tables, graphs, or line drawings should not possess any gradations, screen tints, or dot patterns. For digital images, line art created with a vector program is preferred. However we will accept line art at 900 dpi in an EPS or TIFF file. Questions may be directed to info@finneycreative.com.
- Photographs must be supplied in original form (slide, print, or negative). We cannot reproduce photos directly from previously printed materials, as distortion/loss of quality will occur. High resolution digital images should be at least 266 dpi.

Style

On questions of punctuation, abbreviation, and style, *ABT* follows the *Chicago Manual of Style*, 14th ed. Our spellings are those preferred in *Webster's Tenth New Collegiate Dictionary*. There are excellent articles and books on effective writing styles (e.g., *The Elements of Style* by W. Strunk, Jr. and E.B. White).

A variety of styles makes a journal more interesting; thus, we offer the following writing tips:

- Use the active voice and conversational tone whenever possible.
- Avoid abstract or very technical language and be sure to define all specialized terms.
- Use concise, concrete words to emphasize your point rather than gimmicks such as capitalization, underlining, italics, or boldface.
- Attempt to minimize in-text references. Documentation is necessary in most scientific writing,

but it should not distract readers from ideas.

- Use the SI (metric) system for all weights and measures.

Editorial Procedures

- If you would like us to acknowledge receipt of your manuscript, please include a self-addressed card when you submit your paper.
- We direct communications to the first author of multiple author articles.
- At least two individuals review each article. This is a blind review process in which reviewers do not know the names of the author(s). Authors should put their names only on the title page.
- We attempt to make decisions on articles within eight weeks after receipt. Articles not accepted are returned to their authors. To speed up the handling of your manuscript, **please include a self-addressed envelope and return postage with your article.**
- The editor submits accepted manuscripts to the national office for copy editing. There, the editorial staff will contact authors by phone or e-mail when questions arise or clarification is needed. We edit articles for both style and content, but the author is ultimately responsible for scientific and technical accuracy. Check it carefully before submitting your article. Page proofs will be sent to authors for a final review three weeks before publication.
- We require biographical information (e.g., full name, title, school/organization) and contact information (e.g., postal address, phone, fax, e-mail) so we can send page proofs, a copyright release form, and reprint information before an article is published.
- On the title page, provide each author's name, current position, mailing address, e-mail address, home and work telephone numbers, fax number, and a word count.
- Authors receive one complimentary copy of the issue in which their article appears. Reprints may be ordered any time after publication.

Manuscript Checklist

[] **Double-Space All Copy**, including tables, figure captions, and references. Put your title on a separate page and do not underline titles or subtitles.

[] **Use Standard Paper and the Following Page Format**: one side of 8 1/2 x 11 inch (22 x 28 cm) white bond, leaving a 1 1/2 inch (4 cm) margin on all sides. This leaves room for editorial marks.

[] **Be Sure All Figures Are Camera-Ready**. Present all tables, graphs, and line drawings on separate sheets of paper at the end of the manuscript. Photos should be glossy black and white prints at least 3 1/2 x 5 inches (9 x 13 cm) in size. No Polaroids, please. Illustrations should be drawn using black ink on heavy white paper or printed on a laser printer. Labeling must be suitable for camera-ready reproduction. Key each illustration and photo on the back to its caption, but place all captions on a separate sheet. Include credits. Be sure you have all necessary permissions in writing. Mark the top of photos and figures. Indicate placement of tables, photographs, and figures within the body of the manuscript. All copies of the manuscript must be accompanied by glossy prints of all photographs – photocopies are not acceptable. It is permissible to include photocopies of line drawings for reviewers. Figures that do not appear to have been professionally produced will not be included.

[] **Include Machine Copies of Quotations You Make**. Regardless of their length, you should do this so that we may verify quotes and avoid copyright problems.

[] **Include a Written and Signed Statement of originality**. We require verification from you and your coauthor(s) that your manuscript is neither being nor has been accepted for publication elsewhere.

[] **Include a Disk Containing a Copy of Your Manuscript.** We prefer Macintosh Microsoft Word files, but can accommodate IBM compatible files using Microsoft Word, or Word Perfect. If you are supplying IBM compatible files, please also save the final document as a "text only" or "ASCII Delimited Text" file and send that in addition to the original file.

[] **Submit an Original and Two Copies of Your Manuscript.** Include your address(es), phone, e-mail, and fax numbers. Mail manuscripts to:

NABT Publications Department

12030 Sunrise Valley Dr. #110

Reston, VA 20191-3409

703/264-9696

[] **Double-check Your Format.** Manuscripts not submitted in the proper form will be returned for re-preparation. Be sure that all photocopies are fully readable.

NOTE: There will be page charges of \$100 per journal page that must be paid before a manuscript can be accepted for publication. There are no page charges for ABT manuscripts if all authors of the manuscript are members of NABT

6. Journal of Research in Science Teaching (JARST)

1. Submission

All correspondence, including manuscripts that have not been published elsewhere, should be addressed to Dale R. Baker and Michael D. Piburn, Editors, College of Education and CRESMET, P.O. Box 870211, Arizona State University, Tempe, Arizona 85287-0211, USA. Telephone: 480-965-2241; Facsimile: 480-727-6558; E-mail: jrst@asu.edu

2. Types of Submission

Persons may submit a variety of materials for publication in *JRST*. Manuscripts can assume (but are not limited to) the following forms.

Articles. Many types of scholarly manuscripts about research on science teaching and learning are within *JRST*'s domain, including, but not limited to: investigations employing experimental, qualitative, ethnographic, historical, survey, philosophical, or case study research approaches; position papers; policy perspectives; and critical reviews of the literature.

Authors should discuss the importance of the study for science teaching and learning. They should provide a link between the problem and the study design. They should also establish a relationship between the study and previous work. The guiding theoretical framework should be explained and justified. Methodology should be reported in a concise manner.

If used, data tables should be easy to read, complete, and add to the understanding of the study. Quotations from various sources should be used to support the author's assertions. These quotes should be adequately referenced. The implications should be clearly presented.

The article should be easy to follow. The genre chosen (e.g., expository, narrative) should be appropriate for the study. The writing style should be concise and arguments clear.

Comments and Criticism. These should contain expressions of opinion or information relating to articles published previously or to matters of interest to science educators. This section of the *Journal* will be the forum where the readers may express any reasonable view on any relevant matter. Items for "Comments and Criticism" should not exceed 500 words (including references).

3. Author Anonymity

JRST employs an anonymous review policy (i.e., blind review). Therefore, the author's (authors') name(s) and affiliation should appear on a separate cover page, and only on this page, to ensure

anonymity in the review process. If it is necessary for authors to cite their own work, the word "author" should be inserted in the text to maintain anonymity. Guidelines are listed below:

Citations in Text: Author (date) states

Citations in Reference List: Author (date). Journal Title. (Please do not include the title of the article or its volume and page number information.)

4. Manuscript Style

Manuscripts submitted to *JRST* should be prepared according to the style prescribed by the fifth edition of the *Publication Manual of the American Psychological Association* (American Psychological Association, 2001). Follow the Manual explicitly with regard to (a) the content and organization of the manuscript; (b) writing style, grammar, and use of nonsexist language; and (c) punctuation, spelling, capitalization, use of italics, abbreviations, headings, quotations, tables, figures, references cited in the text, and the reference list.

References.

Wiley's Journal Styles Are Now in EndNote

EndNote is a software product that we recommend to our journal authors to help simplify and streamline the research process. Using EndNote's bibliographic management tools, you can search bibliographic databases, build and organize your reference collection, and then instantly output your bibliography in any Wiley journal style.

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References should follow the APA style, but without the use of italic type. Examples follow:

Journal:

Lederman, N.G., & O'Malley, M. (1990). Students' perceptions of tentativeness in science: Development, use, and sources of change. *Science Education*, 74, 225-239.

Book:

Kuhn, T.S. (1970). *The structure of scientific revolutions* (2nd ed.). Chicago: University of Chicago Press.

Edited Book:

Moscovici, S. (1984). The phenomenon of social representations. In R.M. Farr & S. Moscovici (Eds.), *Social representations* (pp. 3-69). Cambridge, UK: Cambridge University Press.

5. Manuscript Form

Manuscripts should be typed or computer-generated printed (no matrix dot printers, please), and double-spaced (including quotations, footnotes, and references) on standard 8-1/2 × 11 paper, with ample margins. Typical page length is between 15 and 40 pages, but *JRST* will publish longer manuscripts of important and ground-breaking research.

Include a separate cover page that states the title of the manuscript; names of all authors; contact author's phone and fax information; and current mailing and e-mail addresses for all authors. To

ensure author anonymity, this is the only place in the manuscript where author's (authors') name information should appear. (See guidelines for author anonymity.)

All manuscript pages, including tables and figures, must contain a page number and an identifying phrase (running head) as per APA style.

Submitted manuscripts should contain copies of tables and figures. Originals are needed only at the time of final processing of accepted manuscripts. Please do not embed tables and figures in the text, but submit each item on a separate page as per APA recommendations.

All color figures will be reproduced in full color in the online edition of the journal at no cost to authors. Authors are requested to pay the cost of reproducing color figures in print. Authors are encouraged to submit color illustrations that highlight the text and convey essential scientific information. For best reproduction, bright, clear colors should be used. Dark colors against a dark background do not reproduce well; please place your color images against a white background wherever possible. Please contact Alyson Linefsky at 201-748-6723/alinefsk@wiley.com for further information.

The *Publication Manual of the American Psychological Association* may be ordered from APA Book Order Department, P.O. Box 92984, Washington, DC 20090-2984, USA. Orders from the United Kingdom, Europe, Africa, or the Middle East should be sent to the American Psychological Association, 3 Henrietta Street, Covent Garden, London, WC2E 8LU, United Kingdom.

6. Submitting a Manuscript

When submitting a manuscript, please include the following:

- (a) A cover letter indicating to whom all correspondence should be forwarded. Please provide a complete surface or air mail address, including mail codes and country designator. Also, include your e-mail address, telephone number and/or facsimile number.
- (b) Six copies of the manuscript, including a 100–200 word abstract. Laser-quality print is preferred.
- (c) Two self-addressed, stamped envelopes (does not apply to international contributors).
- (d) A signed copy of the Copyright Transfer Agreement (permission granted to copy the agreement from the back of the Journal. The agreement may also be accessed from the *JRST* website at: <http://www.interscience.wiley.com/jpages/0022-4308/>).
- (e) A biographical resume of all authors (including name, position, office address, degrees, and institutions).

Authors should retain original figures, tables, and artwork. These will be requested if the manuscript is accepted for publication.

Mail all submissions to the *JRST* editor at the editorial office. The author will receive notification of the receipt of a submission within 2 weeks.

7. The Review Process

Articles submitted to *JRST* are reviewed anonymously (blind review) by one of the co-editors and three referees: one tracking editor is selected from among the editorial team and two editorial board members. The tracking editor and at least one of the reviewers possess expertise in the domain of the manuscript. All manuscripts are evaluated for their significance to science education and on their technical quality for the type of scholarship represented. All submissions are acted upon as quickly as possible. The review process normally takes approximately 16-20 weeks.

8. Acceptance and Publication

Manuscripts accepted for publication are published in about one year. The author will receive galley proofs of the article to read and correct. The author will receive 25 reprints of the article at the time the article is published. Additional reprints can be ordered and purchased directly from the publisher by filling out the form attached to the galley proof. Under the provisions of the U.S. copyright law, the transfer of the copyright from author to the publisher, heretofore implicit in the submission of a manuscript, must now be explicitly transferred to enable the publisher to publish and disseminate the author's work to the fullest extent.

9. Membership in NARST

The current NARST Annual Membership is \$100.00, which is payable at the beginning of the calendar year. Payment of dues should be mailed to: Marilyn Estes, University of Missouri-Columbia, NARST Administrative Assistant, 303 Townsend Hall, Columbia, MO 65211, USA. Tel: (573) 884-1401; Fax: (573) 884-4855; E-mail: narst@missouri.edu
Applications for membership are available on the NARST website:
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Disk Submission Instructions

**Please return your final, revised manuscript on disk as well as hard copy.
The hard copy must match the disk.**

The Journal strongly encourages authors to deliver the final, revised version of their accepted manuscripts (text, tables, and, if possible, illustrations) on disk. Given the near-universal use of computer word-processing for manuscript preparation, we anticipate that providing a disk will be convenient for you, and it carries the added advantages of maintaining the integrity of your keystrokes and expediting typesetting. Please return the disk submission slip below with your manuscript and labeled disk(s).

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File names. Submit the text and tables of each manuscript as a single file. Name each file with your last name (up to eight letters). Text files should be given the three-letter extension that identifies the file format. Macintosh users should maintain the MS-DOS "eight dot three" file-naming convention.

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Alyson Linefsky
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Manuscript length: 6-25 pages, including references
Copies required: Five

Review Information

Type of review: Blind review
No. of external reviewers: Three
No. of in-house reviewers: Up to three
Editor considers recommendation of reviewers: Yes
Time to review: 3-4 months
Reviewer's comments: Yes
Invited articles: 5% or less

Manuscript Topics

Science, mathematics, and connections between mathematics and science for grades K-graduate and teacher education, especially science and mathematics education articles that deal with assessment, attitudes, beliefs, curriculum, equity, research, translating research into practice, learning theory, alternative conceptions, philosophy and history of science, sociocultural issues, special populations, technology, nontraditional forms of instruction, and science/technology/society.

Manuscript Guidelines/Comments

Membership.

The membership provides a one-year subscription to the journal. Click [hereto](#) get more information about SSMA Membership.

Submission.

All manuscripts should be submitted to the listed [address](#) and are subject to a review process. Manuscripts should not have been previously published nor be under consideration for publication in any other journal.

Source of Publication Guidelines.

Publication Manual of the American Psychological Association, 4th Edition

Fees Charged to Publish.

At least one author of any feature article must be members of the School Science and Mathematics Association or pay an equivalent review and publication fee at the time of acceptance of the article. Members pay no publication fee.

Manuscript Preparation

When submitting manuscripts, include the following:

A cover letter stating the title of the manuscript and complete postal and e-mail address, and phone and fax numbers of the lead author (or other author to be contacted regarding manuscript production).

Five copies of the manuscript prepared according to the 4th Edition of the *Publication Manual of the American Psychological Association*, typed double-spaced using a 12-point or larger font, and printed on 8 1/2- by 11-inch paper.

An abstract on a separate page (include five copies and staple one to each copy of the manuscript).

One title page that includes title of the manuscript, names of all authors, contact author's fax and phone numbers, and complete postal and e-mail addresses for all authors. This is the only place the author's (authors') name(s) should appear on the manuscript. To maintain anonymity of the author(s), author(s) citing their own work should cite as follows:

In text: Author (1989) found...

On reference list: Author (date). Journal Title.

(Do not include title of article or volume and page #)

Graphics submitted as publication-ready copy on white paper with black ink. Use no larger than 8-point font for text on figures; use no larger than 11-point font for tables. If possible, figures and tables should be no wider than 3.25 inches to fit one column. Otherwise, tables and figures should be no wider than 6.75 inches.

Manuscripts containing computer programs must be accompanied by a disk containing the program and documentation on how to use it.

Review Criteria

Manuscripts submitted for review will be evaluated on the following:

School Science and Mathematics welcomes articles of all types related to the teaching and learning of science and mathematics. Such articles would include, but are not limited to evaluation studies, classroom scholarship, design research, research on teaching and learning, or theoretical/conceptual analysis. Reviewers will apply the following evaluation guidelines, as appropriate, to manuscripts being submitted for publication. Please see the description of the different types of manuscripts for further information about how the manuscript categories have been conceived.

The following criteria will be used by reviewers in evaluating the appropriateness of manuscripts for publication in *School Science and Mathematics*:

For All Manuscripts

Does the manuscript address issues related to the teaching and learning of mathematics and/or science?

Is the topic of current interest to science and/or mathematics educators or does it raise important issues that have yet to be considered by the education community?

Does the manuscript address a question or concern of educational importance?

Does the author make clear near the beginning the type of paper being presented, e.g. theoretical/conceptual, research, evaluation, etc.?

Has the author described his/her background in sufficient detail so that the reader can discern the personal perspective that may have influenced data interpretation?

Does the author integrate of previous scholarship, research and/or policy reports related to the paper's topic?

Are the main ideas presented in a logically organized and consistent manner?

Are the author's interpretations of literature and/or data valid?

Are the author's arguments and conclusions consistent with the relevant literature?

For Empirically-based Manuscripts

Are the sample(s) or individual subjects adequately described (e.g., selection, size, other important characteristics)?

Are the research design and important procedures clearly described?

Are the research design and procedures appropriate for answering the stated research questions?

Is the following indicated for each data collection instrument or procedure (where appropriate)?

- a) name of measure
- b) appropriate for grade or age level of use
- c) reliability or inter-rater/observer agreement
- d) validity

Are statistical procedures and statistical values clearly reported (where appropriate)?

For qualitative data, are representative quotations, sample documents, etc. clearly reported in support of the author's assertions?

Were appropriate data analysis procedures used for the particular questions being asked? (e.g., statistical procedure, unit of analysis, discourse analysis, constant comparative, analytical induction)

Are the results clearly reported and appropriately linked to the problem being investigated?

Do the research design and results permit the author's conclusions?

Are there alternative explanations for the results that the author has not addressed?

Has generalizability been adequately addressed where appropriate?

Guidelines for Accepted Manuscripts

MANUSCRIPTS NOT CONFORMING TO THESE GUIDELINES WILL BE RETURNED TO THE AUTHOR FOR ADDITIONAL REVISION.

This journal follows the style of the Fourth Edition of the *Manual of the American Psychological Association*. All line spacing, numbers, statistics, variables, headings, lists, citations, references, appendixes, and figure and table placement must conform to APA style, with the exceptions listed under item 4 and 5.

In business communications, the common practice is to insert two spaces between sentences. For your SSM publication, place only one space after a period at the end of a sentence. You may use the Find-and-Replace function on your word processing software to delete the extra spaces.

Indent the first line of each new paragraph. Indent quotes and numbered or bulleted lists using the paragraph formatting commands in your software program. Place hard returns ONLY at the END of a paragraph or listed item.

Tables contain data in columns and rows. Figures are illustrations, such as charts, graphs, photographs, or drawings. Everything else (questionnaires, instructions, lists, interviews, tests, etc.) should be labeled an appendix. Tables, figures, and appendixes must be submitted as publication-ready copy on white paper with black ink. For publication in the journal, the first preference is for tables, figures, and appendixes to fit within one 3.25" column. However, tables, figures, and appendixes too large for a single-column format must be no wider than 6 3/4". Text

should be no smaller than 8 point and no larger than 11 points. We prefer text in a Times New Roman or similar serif font. Tables are formatted differently from APA style, in that all borders, grids, and lines should be removed. Captions should go at the TOP for figures, tables, and appendixes. Please include everything on the disk with your manuscript if possible. Sometimes, we can use the electronic version.

Use italics rather than underlining variables, statistical symbols, and names of publications.

As in APA, indent the first line of each entry in the reference list using a hard tab command. No hanging indents, please. Place a hard return ONLY at the end of each reference entry.

Do not use two hyphens for dashes if you can avoid it. To insert *em* dashes in your document using Microsoft Word, select *Insert* from the menu, then select *Symbol*. In WordPerfect, select *Insert* and *Character*. For documents saved in ASCII format, your only option is to use two hyphens.

Return two printed copies of the revised manuscript, including a title page stating the name of the manuscript and the author's complete mailing address, including fax and email addresses for all authors.

Science Scoop (NSTA)

What to submit and writing tips

Effective inquiry activities that are original and creative

Interdisciplinary science experiences

Successful partnerships or programs

Themes of current issues in science education

In your article, share the complete experience, including what you did, what worked, and what didn't. When describing an activity, identify its place in the curriculum, the appropriate grade level, assessment techniques, and any safety considerations. Include how the activity addresses current science standards. Tell us what students were wondering about that led you to conduct the activity. What did students say as they conducted the activity? What changes will you make to the activity in the future?

When describing a successful partnership or program, give complete details. How was the program set up? Why was it begun? What are its goals? What were students' reactions as they participated? With these suggestions in mind, you may soon be among *Science Scope's* published authors.

What about copyright?

NSTA will hold the copyright to your article in order to facilitate reprinting and republishing in the future. However, if you wish to have your article reprinted elsewhere, you need to secure permission from NSTA and include a credit line on the first page of the reprint.

Manuscript presentation

Your manuscript should not exceed 2,000 words. Longer manuscripts may be returned for revision without being reviewed.

Include a 50-word abstract of your article.

SI (metric) units should be used throughout the article.

Tables, graphs, and charts should be appropriately labeled.

Bibliographies and resource lists should be alphabetized and limited to current, readily available items.

Photographs

When taking photographs for the journals, students in laboratory settings must be shown following appropriate safety guidelines and wearing proper safety attire, including full-wrap, splash-proof goggles. Students' faces should be visible, but they should not look directly at the camera. If a photograph is used, a signed model release will be required of each student pictured.

How to submit

Manuscripts should be submitted electronically through our website at authors.nsta.org. Once at the site, follow the steps for New Author Registration. To submit your manuscript, you will first need to save it as a Word document in PC format. Please choose a file name based on the title or content of your manuscript, not on the author's name or school, and do not include a cover sheet as part of the file. These steps are to protect authors' identities as a manuscript moves through our blind, peer-review process.

All graphics should be scanned and embedded in the document. When embedding a document, please only use low-resolution files (72 dpi). If we decide to use the images in print, we will contact you to obtain high-resolution (300 dpi) versions of the files, or hard copies of the graphics that we can scan in at high resolution. If you are unable to embed your graphics, you can submit hard copies by mail to the address below.

If you have any problems using our website to submit a manuscript, you may email a copy to mrc@nsta.org directly or submit a copy by mail. If you send your manuscript by mail, please include a hard copy on disk. Send your materials to:

Science Scope

Manuscript Review Coordinator
1840 Wilson Blvd.
Arlington, VA 22201-3000

If you have any questions about the submission process, please contact the Manuscript Review Coordinator at (703) 312-9382 or mrc@nsta.org. If you are a manuscript reviewer, you can log in [here](#).

Cell Biology Education

All submitted works will be subject to peer review.

Research and descriptive articles will be expected to display pedagogical content

clear description of goals and expected student outcomes

transferability to other settings

application to a defined audience of teachers

references to related educational literature

Submitted papers must be original (i.e., not published or submitted for publication elsewhere).

The text should be in clear, concise, proper English and should ordinarily begin with an overview of how the work presented is relevant to classroom, laboratory, or curriculum and what student outcomes are expected.

Whenever possible, incorporate materials by citing relevant publications, without repeating

already published works. Tables and illustrations should convey information effectively and graphs and figures should be provided digitally in an EPS or TIFF format. Authors are encouraged to take advantage of the online nature of CBE. Video, audio, databases, images, animations, molecular structures and other electronic resources may be incorporated into the submission or added as an appendix for further consideration by readers.

Guidelines for Electronic Resources

Due to CBE's electronic publication status, it is now possible for authors to submit for peer review electronic works including, but not limited to: animations, Chime tutorials, movies, interactive web sites that may include quizzes, images (electron micrographs, photomicrographs, etc.), Java Applets, searchable databases, etc. Articles that describe new educational uses of existing resources [e.g. Expression Connection, FlyBase, Database of Interacting Proteins, etc.] are also of interest. Manuscripts of this type should provide detailed instructions for use of the resource by the target audience. In these cases, it may not be possible to host the resource on the CBE server. For works using someone else's electronic resource (such as a database), a letter from the creator or curator of the resource indicating their willingness to support free pedagogical use of their work must be included.

The same general rules for evaluation will apply to all electronic submissions:

All submissions will be evaluated for:

pedagogical content

clear description of goals and expected student outcomes

transferability to other settings

appropriateness for the target audience

references to related educational literature

In addition:

After publication of the electronic work(s), the authors will be encouraged to submit the work to other databases (National Digital Library, BEN, etc.); however, it is expected that the CBE publication citation will remain associated with the work. This will allow viewers to read a more in-depth discussion of the work.

All electronic works will be hosted on the CBE server, with the exception of large data bases, as noted above. This will insure stable access to the works with a non-changing URL.

A manuscript should accompany any submission. The manuscript should describe:

a) the learning goals or purpose of the electronic work;

b) the target audience;

c) development of the electronic work;

d) platform availability (see below);

e) a description of any necessary hardware or software, with links to the appropriate sites for downloading (e.g. plugins, helper applications, etc.); and

f) assessment of the work's impact on student learning.

Item c) should include a description of hardware and software used. Ideally, submitted works would work on any platform (PC, Mac, Unix) and on all browsers. If there are known restrictions, these should be included in the manuscript. CBE can help authors test their works for such limitations if they do not have access to certain platforms or browsers. Assessment may come in the form of learning gains (e.g. pre/post tests) and/or changes in student attitudes towards the electronic work. Length of time spent using the electronic work may be one

indicator of student attitudes. If it is possible to measure student responses to online questions, these responses (number of submissions before correct answer, typical errors, etc.) may further a reader's understanding of how the electronic work could be incorporated into his or her teaching.

The electronic work may have been hosted previously on any web site, but the authors may not have previously published any description of the electronic work other than the associated web pages. Published journal descriptions of the electronic work will preclude publication in CBE, with the exception of abstracts or presentations at professional meetings.

The manuscript should include an abstract, and any figures deemed helpful when the published work appears as a PDF file.

The online publication will include hyperlinks to the work that will appear in a new browser window, if appropriate. This capacity could be helpful to the authors since they could provide directions for readers as needed to illustrate particular aspects of the work.

CBE will only publish works that are freely available.

The layout and submission process for the manuscript accompanying an electronic work should follow the same general format as other categories. The electronic work should be submitted to CBE at the same time as the manuscript. If this presents a problem, contact the managing editor for assistance.

General Length Guidelines

The following manuscript submission lengths are intended to aid authors in preparing their manuscripts; submissions outside these ranges will be considered.

Features : 6,000-12,000 characters (with spaces), or 1-2 journal "pages"

Essays : 12,000-30,000 characters (with spaces), or 2-5 journal "pages"; typically do not exceed 10 journal pages, or 60,000 characters

Articles : 30,000-60,000 characters (with spaces), or 5-10 journal "pages"; typically do not exceed 20 journal pages, or 120,000 characters

Review Process

After a new submission is approved by the author; the Editors-in-Chief will select an editorial board member to guide the paper through the review process. Editorial board members will select either two reviewers (for articles and electronic resources) or one reviewer (for essays) to submit written evaluations. The board member will assess the peer review(s) and determine whether the submission will be accepted as is, accepted with suggested revisions, temporarily rejected with suggestions for improvements before resubmission, or rejected with reasons explaining this decision. By utilizing online submissions and email communication, the corresponding author can expect an initial response within four weeks. Submissions sent via email alone will require longer review times.

Online Papers Will Be Searchable/ Browseable by:

Key words and author names.

Freely Available via PubMed Central:

All accepted works will be included in PubMed Central. This will significantly enhance the circulation and availability of your work.

Ongoing Electronic Annotations of Articles:

A goal of CBE is to stimulate dialogue; therefore, readers will be invited to submit to the CBE

website comments on published articles. Before public posting, however, these comments will be reviewed by the article's Monitoring Editor for appropriateness, and authors will be given an opportunity to respond to comments.

Four Publications a Year:

CBE will be published four times a year, in March (Spring issue), June (Summer issue), September (Fall issue), and December (Winter issue).

Deadlines:

Submissions will be accepted at any time. In order to be published in the next issue, the work must be accepted in final form at least two months prior to the publication date.

How to Submit Manuscripts

Electronic Submissions (preferred method)

Authors are encouraged to submit their manuscripts electronically. Please see this website for instructions on how to submit your manuscript over the Web. If the manuscript contains figures, please see instructions in the next paragraph for submission guidelines. Authors should submit in MS Word or WordPerfect two text files, the first containing the cover letter (described below), and the second containing the manuscript file with the tables embedded at the end of the file.

Figures over 10 MB should be submitted as separate attachments to the email, in a compressed (i.e., zipped) format with an EPS or TIFF extension. If submitted via FTP, notify the CBE office by email (cbe@ascb.org). Include in the email the author's name and the names of all files. The address to submit files via FTP can be typed into any Web browser:

ftp: cellbioed.org

login: CBEFTP

password: ascb*cbe

Create a folder and label it with the first eight characters of the Corresponding Author's last name. Then click and drag all the manuscript files from your computer to the Web browser window into your folder. If you cannot create a folder, be sure each manuscript file is labeled with the Corresponding Author's name and drag the files over directly into the FTP site. Be sure all files have filenames that are no more than eight characters long. A "read me" file containing the number, names and types of files submitted should also be included.

Note. If the paper is accepted, one high-quality photographic print of each figure should be sent via express mail to the ASCB office with an accompanying cover letter that indicates (by title and author) the manuscript to which the figures belong.

Email Submissions (results in slower review process)

To submit a Feature to CBE, please send all files as attachments to cbe@ascb.org, indicating in the email text the title of the Feature, all author names, and the names of the files attached.

All other manuscript submissions will be accepted at cbe@ascb.org only under emergency circumstances if the electronic submission website is temporarily unavailable.

Questions regarding submission guidelines can be directed to: cbe@ascb.org or 301-347-9300.

Guidelines for Manuscript Layout

Authors should submit a cover letter from the corresponding author stating that the work is being submitted exclusively to CBE and indicating why it is appropriate for the Journal.

Authors are invited to suggest reviewers (please include institution and email address).

In addition to the cover letter, the manuscript should include:

1. Title page. Page 1 should include the title of the manuscript, the topic area (e.g., research article, book review, essay, column, etc.) in which the manuscript best fits, the number of words in the manuscript, a shortened running title (not to exceed 42 characters and spaces), the name of the corresponding author, and the names and affiliations of all other authors. For the corresponding author, give complete postal and email addresses and telephone and fax numbers. Keywords should also be included on page 1; include at least five keywords selected from text of the article. Among the keywords, if possible, please include one that indicates the target student group (primary, secondary, undergraduate, graduate, postdoc) and a second keyword that indicates which cells or organism reflect the object of study (e.g., bacteria, fungi, plants, yeast, *Drosophila*, nematodes).

If one or more of the authors of a research paper that assesses the effectiveness of a product/curriculum was also involved in producing the product/curriculum, readers need to be fully aware of this potential conflict of interest. Therefore, any potential conflict of interests should be clearly stated on the first page of the manuscript. This will be noted under the byline if the manuscript is accepted for publication.

2. Abstract. Page 2 should contain the abstract, which should be no more than 200 words long and should summarize the important points made in the manuscript.

3. Manuscript text. On page 3, the text of the paper should begin. CBE follows the style guidelines of the Council of Biology Editors Style Manual. For chemical nomenclature, follow the Subject Index of Chemical Abstracts. Capitalize trade names and give manufacturers' names and addresses. Tables and figures are discussed below but should not be included within the body of the manuscript. A format of introduction, methods, results, discussion and references is encouraged, but other formats may be more appropriate for some topics.

4. A final section entitled "Accessing Materials" should describe how to access new educational materials if the study or use of such materials is the subject of the paper. If materials are online, the URL should be provided. Any registration requirements or agreements inherent in the use of the materials should be described. If there are no online materials, simply state "No additional materials online." For other new educational materials presented in the manuscript, authors should describe how readers can access the materials, what format is available (e.g., DVD, CD-ROM, PDF files, html pages, etc.), and how to request copies (please specify if there are any fees assessed, e.g., shipping). Note that while CBE publishes independent reviews of commercially available educational materials, it is assumed that materials prepared and reported on by the same author will be made available on a non-profit basis. Please contact CBE with any questions concerning this policy.

5. Acknowledgment: Financial sources and other sources of support should be identified.

6. Reference list. Place the reference list immediately following the manuscript text (on a separate page) and use the Council of Biology Editors Style Manual as a guide for formatting. References to published works should be cited in the text by name and date and not by number (Beckerle et al., 1987 or Nagafuchi and Takeichi, 1989). Only articles published or in press should be listed in the Reference section. References should contain complete titles and inclusive page numbers and should be listed in alphabetical order. Abbreviate the names of journals as in the Serial Sources for the Biosis Data Base.

Citations to online websites are acceptable reference links. In text, include the name of author for the cited website and the date accessed (National Center for Biotechnology Information, 2003). The citation should include the author (if known), date of latest modification (if known)

or copyright, title of page, title of complete work (if appropriate), URL in brackets <xxx>, and date of access. For example:

National Center for Biotechnology Information. 2003. NCBI Home Page.

<<http://www.ncbi.nlm.nih.gov/>> Accessed 5 February, 2003.

Unpublished results, including personal communications and submitted manuscripts, should be cited as such in the text. Personal communications must be accompanied by permission letters unless they are from the authors' laboratory. If you cite no references, include the results of a literature search that cites your own and others' work that has a bearing on the manuscript you are submitting and explain why no citations are needed. Include in this section only material that has been published in the literature or on the Internet.

7. Footnotes. Footnote citations should be called out in the appropriate place in text by a superscript number. The text of the footnote should be placed on a separate page after the reference list.

8. Tables. All tables must be cited in the text of the manuscript. The formatted tables should be contained within the manuscript document and placed after the Reference List and/or Footnotes.

9. Figure legends. Figure legends should be placed at the end of the text file, on a separate page. Legends should be double spaced. Figure submission requirements are dependent upon the medium used for submission (i.e., paper vs. electronic). Please refer to the "Submission Options" section for details on figure submission.

10. Book reviews. Book reviews should include the complete book title, publisher information, author detail, and ISBN number and retail price. The reviewer should suggest a title for the book review, but the title should be informative and not too cutesy that it fails to describe the book to most readers

11. Embedded hyperlinks. Links to URLs hosted on the ASCB web server may be made within the text. Hyperlinks pointing to third-party servers should be cited as a web reference; a live hyperlink will be included in the references, not within the body of the manuscript. This is to prevent broken links from appearing in the body of the work.

CBE Submission Timetable

General Questions

At any stage in the submission process, authors with questions should contact the CBE Editorial Office at 301-347-9300 (phone); 301-347-9350 (fax); cbe@ascb.org; or The American Society for Cell Biology, 8120 Woodmont Avenue, Suite 750, Bethesda, MD 20814-2762.

You may contact editorial board members or the Co-Editors-in-Chief by email.

Carolina Biological

Wasn't able to find anything on there website about submission guidelines

BioEd Online

Wasn't able to find anything on there website about submission guidelines

Appendix II



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NIGMS Office of Communications and Public Liaison Publication Marketing Outlets

* = Useful outlet

GOVERNMENT ORGANIZATIONS/OUTLETS

Educational Resources Information Center (ERIC)

Outlet: A national information system funded by the U.S. Department of Education's Institute of Education Sciences to provide access to education literature and resources.

Web URL: <http://www.ericse.org>

How to Submit: Complete and submit a hard copy of the ERIC Reproduction Release form (available on the ERIC site) along with a copy of the document being contributed.

Federal Resources for Educational Excellence (FREE)

Outlet: More than 30 Federal agencies formed a working group in 1997 to make hundreds of Federally-supported teaching and learning resources easier to find. The result of that work is the FREE web site. E-mail FREE@ed.gov.

Web URL: <http://www.ed.gov/free/index.html>

How to Submit: E-mail FREE@ed.gov.

A link to our science education page is available on the FREE site.

Gateway to Educational Materials

Outlet: The Gateway to Educational Materials (GEM) is a consortium effort to provide educators with quick and easy access to the substantial, but uncataloged, collections of educational materials found on various Federal, state, university, non-profit, and commercial Internet sites. GEM is sponsored by the U.S. Department of Education.

Web URL: <http://thegateway.org>

How to Submit: E-mail gemail@geminfo.org.

NIGMS science education materials are currently listed in this database.

Appendix II

*National Network of Libraries of Medicine (NN/LM)**

Outlet: An organization of 5,000 medical libraries throughout the United States. Maintains a listserv with member libraries.

Web URL: <http://nmlm.gov>

How to Submit: Send an e-mail describing the publication to Angela Ruffin at NLM (ruffina@mail.nlm.nih.gov), and she will distribute to the network.

National Science Resources Center

Outlet: Operated by the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the Smithsonian Institution to improve the teaching of science in the nation's schools. The NSRC collects and disseminates information about exemplary teaching resources, develops and disseminates curriculum materials, and sponsors outreach activities.

Web URL: <http://www.si.edu/nsrc>

How to Submit: Send to Wendy Binder, Senior Program Associate, The LASER Center, National Science Resources Center, Washington, DC, (202) 287-2065.

AZM contacted--Ms. Binder asked to see hard copies of the booklets and will decide whether to order additional copies once she receives and reviews these (order sent to IQ on 12/5/2003).

NCRR Science Education Partnership Awards (SEPA) Programs

Outlet: NCRR-supported network of K-12 science education programs.

Web URL: http://www.ncrr.nih.gov/clinical/cr_sepa.asp

How to Submit: Consider contacting SEPA program directors listed at periodically updated program listing (<http://www.ncrr.nih.gov/ncrrprog/sepadirstateprog2002.pdf>).

NIGMS Minority Programs Update Newsletter

Outlet: NIGMS publication distributed to MORE program participants, minority schools, university science department chairs, etc.

Web URL: <http://www.nigms.nih.gov/news/mpu.html>

How to Submit: Make sure a notice and small picture appear in an upcoming issue of the newsletter (submit to Susan or Jilliene).

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- NIH Office of Science Education Web Site (for teachers/publications on health and medicine/basic science and medical research)*

Outlet: NIH Web site frequented/marketed to life science teachers.

Web URL: <http://www.science.education.nih.gov/homepage.nsf/menu?openform&ParentUNID=94E36D93FAC4B759852564C00070E9A6>

How to Submit: Send an e-mail request to the NIH OSE, ose@science.education.nih.gov.

- NIH Public Bulletin**

Outlet: Online newsletter announcing NIH public liaison activities/resources nationwide. Published monthly by the NIH Office of Public Liaison.

Web URL: <http://forthepublic.nih.gov/newsbulletins.asp>

How to Submit: Submit publicity announcements at the secure submission site <https://secure.palladianpartners.com/NIHLOG/>.

For questions about submitting (e.g. if you have not submitted before and need a login name and password), contact Palladian Partners at bulletin@palladianpartners.com or Cathy Kristiansen at (301) 650-8660 x 181.

- NIH Visitor Information Center*

Outlet: The NIH Visitor Information Center provides maps, directional information, publications, and brochures. The staff arranges overviews, tours, meetings, speakers and other special programs for members of Congress, diplomatic visitors, industry officials, advisory council members, scientists, students, NIH employees, and the general public.

Web URL: <http://www.nih.gov/od/ocpl/index.html#visitor>

How to Submit: Take new publications to the Visitor Information Center, Building 45, 1st floor.

- NIH Word on Health Newsletter*

Outlet: Practical health information in *The NIH Word on Health* is based on research conducted either by NIH's own scientists or by our grantees at universities and medical schools around the country.

Web URL: <http://www.nih.gov/news/WordonHealth>

How to Submit: Contact Harrison Wein, Ph.D., weinh@od.nih.gov, (301) 435-7489.

TEACHING ASSOCIATIONS/ORGANIZATIONS

Biomedical Science Careers Program

Outlet: BSCP was founded in 1991 by the Minority Faculty Development Program at Harvard Medical School in collaboration with the Massachusetts Medical Society and the New England Board of Higher Education. BSCP's principal objectives are to identify, inform, support, and provide mentoring for academically outstanding minority students, particularly African American, Hispanic American, and American Indian/Alaska Native students. These students range from high school to the postdoctoral level.

Web URL: <http://www.bscp.org>

How to Submit: Contact as appropriate.

*National Association of Biology Teachers**

Outlet: A national organization of more than 9,000 educators in the field of biology. Produces *American Biology Teacher* publication which includes a section on Book Reviews and a monthly newsletter titled *News and Views*.

Web URL: <http://www.nabt.org>

How to Submit: Send information on new publications to Wayne W. Carley, Executive Director, e-mail wcarley@nabt.org; or to Cheryl Merrill, Director of Publications, e-mail cmerrill@nabt.org. Contact for *News and Views* is Betsy Keogan, e-mail bkeogan@nabt.org.

National Science Teachers Association Building a Presence for Science

Outlet: Building a Presence for Science is the largest networking initiative of the National Science Teachers Association. The award-winning program is designed to improve the teaching and learning of science from kindergarten through 12th grade.

Web URL: <http://ecommerce.nsta.org/bap/>

How to Submit: Alison is looking into this outlet 11/20/03.

*National Science Teachers Association Reports Newsletter**

Outlet: A national association of more than 55,000 members including science teachers, science supervisors, administrators, scientists, business and industry representatives, and others involved in and committed to science education. Submissions often end up in the "Freebies" section of the NSTA Web site.

Web URL: <http://www.nsta.org>

How to Submit: Contact Debra Shapiro, Associate Editor of NSTA Reports, dshapiro@nsta.org, (703) 243-7100.

PROFESSIONAL SOCIETIES/ORGANIZATIONS

- National Coalition for Health Professional Education in Genetics* (for genetics-related materials)

Outlet: NCHPEG is an "organization of organizations" committed to a national effort to promote health professional education and access to information about advances in human genetics. Members are an interdisciplinary group of leaders from approximately 120 diverse health professional organizations, consumer and volunteer groups, government agencies, private industry, managed care organizations, and genetics professional societies.

Web URL: <http://www.nchpeg.org>

How to Submit: *Genetic Basics* has been previously submitted to this organization.

- The Pennsylvania Society for Biomedical Research**

Outlet: A non-profit organization dedicated to educating Pennsylvanians about biomedical research and the importance of the humane use of animals to improve the health and well being of both humans and other animals. As part of this effort, the organization offers free materials to Pennsylvania teachers to give them the tools to provide excellent science education.

Web URL: <http://www.psbr.org>

How to Submit: E-mail the society at psbr@psbr.org. They have previously requested *The Chemistry of Health*, *Genetic Basics*, *The Structures of Life*, and *Inside the Cell*. In October 2003, e-mailed this organization about *Medicines By Design* and *Findings*—they requested 250 copies.

- SACNAS News*

Outlet: Newsletter and print publication of the Society for Advancement of Chicanos and Native Americans in Science, a national scientific organization.

Web URL: <http://www.sacnas.org>

How to Submit: E-mail submissions to postmessage@sacnas.org (for e-newsletter) or Jenny Kurzweil, Editor, jenny@sacnas.org (for *SACNAS News*).

- Other society newsletters?*

- Synchrotrons newsletters and facilities

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- American Physical Society
- (Alisa/Alison)
- ?
- ?

Scientific Journals?

- *Nature Structural Biology*
- *C&E News*
- *Science*
- (Alisa/Alison)

Distribute at Scientific Meetings/Health Fairs

- Annual Biomedical Research Conference for Minority Students
- American Indian Science and Engineering Society
- American Society for Cell Biology
- Society for Advancement of Chicanos and Native Americans in Science
- Society for Neuroscience
- NIH Science Education Exhibit Booth
<http://www.science.education.nih.gov/exhibits>
- National Native American Youth Initiative
- National African American Youth Initiative
- National Hispanic Youth Initiative
- Native American Powwow Outreach Initiative
- Black Family Reunion
- Share the Health
- Louis Stokes Alliance for Minority Participation in Science (LSAMPS) Urban University conference series

EDUCATOR/HOMESCHOOLING OUTLETS

Access Excellence

Outlet: A national educational program that provides high school biology and life science teachers access to their colleagues, scientists, and critical sources of new scientific information via the Internet.

Web URL: <http://www.accessexcellence.org>

How to Submit: The best way to contact teachers on this site is to post a message in the Teacher's Lounge Discussions. For best results select the folder or discussion that most closely addresses the topic of your question.

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A to Z Home's Cool Homeschooling Web Site

Outlet: On-line homeschooling resource center (includes a list of free materials and sites where homeschoolers can search for free materials).

Web URL: <http://www.gomilpitas.com/homeschooling/materials/Free.htm>

How to Submit: E-mail site manager Ann Zeise at homeschoolguide@gomilpitas.com and request that she link to our site (she recently listed our science education materials on the site).

*Educators Guide to Free Materials**

Outlet: Educators Progress Service, Inc., 214 Center Street, Randolph, WI 53956-1497, (920) 326-3126.

Web URL: <http://www.freeteachingaids.com/>

How to Submit: Free materials are solicited/evaluated for listing once per year, at the beginning of the year. We typically receive a request to update our listings in January (Jilliene handles).

Eisenhower National Clearinghouse

Outlet: An online K-12 math and science teacher center. Currently includes listings for *Findings*, *Inside the Cell* (with a note that a new edition will be out in 2004), *The Structures of Life*, *Chemistry of Health*, *Medicines By Design*, and *Genetic Basics*. AZM asked them to remove their listing for the *New Human Genetics*.

Web URL: <http://www.enc.org> (HHS specific listing, which mentions NIGMS publications is at <http://www.enc.org/professional/funding/guidebook/agencies/0,2056,16,00.shtm>)

How to Submit: Send an e-mail with a description of the publication to Pam Bentley or Dennis Beaudry (AZM has always worked with Pam). Contact Pam Bentley, Acquisitions, (614) 688-3265, pbentley@enc.org; or Dennis A. Beaudry, Acquisitions, (614) 292-9886, dbeaudry@enc.org.

If they decide they want a hard copy submission, send it to: Eisenhower National Clearinghouse, 1929 Kenny Road, Columbus, OH 43210-1079, (614) 292-9886.

Frank Potter's Science Gems

Outlet: Links to science resources for students, parents, teachers, scientists, engineers, and mathematicians. Includes more than 14,000 science resources sorted by category, subcategory, and grade level.

Web URL: <http://www.sciencegems.com>

Appendix II

How to Submit: Alison sent Frank Potter an e-mail on 11/20/03.

Secondary School Educators

Outlet: About.com topic page for secondary school educators.

Web URL: <http://7-12educators.about.com/cs/scienceandhealth/>

How to Submit: AZM sent e-mail to Melissa Kelly at 7-12educators.guide@about.com on 12/3/03.

Appendix III

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Education-Related Activities Calendar 2004 SOT Annual Meeting

Baltimore Convention Center

Day	March	Time	Function	Location	Notes
Sat	20	2:00-5:00 PM	Committee Chair Meeting	301	Committee and subcommittee chairs, incoming and outgoing
		5:15-7:00 PM	Fellowship Interviews	333	Education Committee
		5:30-6:00 PM	Undergrad Program Orientation		SOT Hosts, Peer Mentors and Advisors, volunteers
		6:00-9:00 PM	Undergraduate Program	337	SCMI and others
Sun	21	7:30-7:45 AM	Breakfast: Minority Students and Hosts and Mentors		
		8:00-5:00 PM	Undergraduate Education Program	336	SCMI and others
		5:15-6:30 PM	Awards, inc. students	307	
Mon	22	7:30 AM-1:00 PM	Undergraduate Education Program for Minority Students	337	SCMI
		9:30-4:30PM	K-12, TEF Exhibits	Exhibit Hall	everyone
		1:00-3:00 PM	Undergrad Ed Program Focus Groups	333	Evaluator and participants
		1:30-3:30 PM	Paracelsus Volunteers	335	
		2:00-3:30 PM	Mentor Training for K-12 Outreach	336	K-12 and others
		4:30- 5:30 PM	Undergraduate Toxicology Teaching Forum	304	Allegheny Erie RC Ed Committee
Tues	23	8:00-4:30 PM	Paracelsus Goes to School	336	K-12 and others
		8:30-4:30	K-12, TEF Exhibits	Exhibit Hall	everyone
		9:45-11:30 AM	ToxLearn	306	ToxLearn group
		1:30-4:00 PM	Grantsmanship Forum	325	Education Committee, others
		1:30-4:30 PM	Virtual Seminar taping*	306	designated
		5:30-6:30 PM	Regional Chapter Contacts for K-12 Education meeting	304	K-12 SC, others
Wed	24	6:30-8:30 AM	SCMI Meeting	334	SCMI
		8:30-4:30	K-12, TEF Exhibits	Exhibit Hall	everyone
		11:30 AM-1:30 PM	Education Subcommittee for K-12 Education	304	K-12 SC
		1:30-3:00 PM	Education Committee Meeting	304	Education Committee
		1:30-4:30 PM	Education and Outreach poster session	Exhibit Hall	K-12 SC, Education Committee and others
Thur	25	8:30-11:30	Workshop: Novel Approaches to Engaging Toxicologists in K-12 Science Education and Outreach	314	K-12 SC, Education Committee and others

* Virtual Seminar taping will occur Sunday through Wednesday at various events



**Novel Approaches to Engaging Toxicologists in
K-12 Science Education and Outreach
Society of Toxicology**

**March 25, 2004
8:30 – 11:30 a.m.**

8:30 Introduction & Overview

Dave Eaton
University of Washington

Craig Marcus
University of New Mexico

8:35 Positive Impacts of Toxicologist Visits to the Classroom: A Teacher's Perspective

Panelists will present a summary of environmental health sciences (EHS)/toxicology projects with their students to demonstrate how toxicologists can become positively engaged in learning activities and projects to increase student awareness of and interest in EHS/toxicology.

Douglas Becker,
Cambridge-South Dorchester High School
Dorchester County Public Schools

Felicity Ross
Robert Poole Middle School #56
Baltimore City Public Schools

Art Renkwitz
Cambridge-South Dorchester High School
Dorchester County Public Schools

Barbara Tharp
Center for Educational Outreach
Baylor College of Medicine

9:05 Toxicologists in the Classroom: Successful Models for K-12 Outreach

A panel of toxicologists with extensive K-12 classroom experience will share insights and provide examples of successful approaches and potential problems which can be employed by toxicologists for effectively conveying toxicology information to K-12 students and their teachers. Examples of "teacher-friendly" toxicology and risk assessment presentation to teachers will be presented as other types of successful outreach activities for professional toxicologists.

Nancy Kerkvliet
Oregon State University

Stephen H. Safe
Texas A&M University

Michael Trush
Johns Hopkins University
Bloomberg School of Public Health

David Eaton
University of Washington



Novel Approaches to Engaging Toxicologists in K-12 Science Education and Outreach

Society of Toxicology, March 25, 2004

9:35 Classroom to Field: Putting Toxicology in a Local Context

Presenters in this session will highlight their efforts in taking students into the field to teach them about toxicology through local environmental health issues in New Mexico and Maryland. The presenters will discuss 'nuts and bolts' of this approach and the benefits to students, teachers, toxicologists and communities.

Barbara Sattler

Environmental Health Education Center
University of Maryland School of Nursing

Johnnye Lewis

Department of Internal Medicine
University of New Mexico Health
Sciences Center

9:55 Hands-on Fun: Tools for Toxicologists Entering the K-12 Classroom

Using an interactive, "family science night" approach, toxicologists will be introduced to simple, inexpensive activities and tools that can be used when visiting classrooms. There will be 6 tables of hands-on activities. They will be organized by grade-level appropriateness.

Bio Buildup and Separating Solutions

K-3 – Baylor College of Medicine

Bio Buildup is a math investigation that toxicologists can use with elementary students to simulate bioaccumulation in a simple aquatic ecosystem using stick-on dots.

Separating Solutions is an engaging activity where elementary students use coffee filter "paper chromatography" to investigate a mysterious liquid. Toxicologists can use this activity to show students that many different substances can be in solution simultaneously.

Peak Flow Lab

High School – University of Miami

This activity provides toxicologists a creative way of using a peak flow meter to discuss the effects of toxic respiratory exposures (e.g., tobacco smoke and occupational exposures) on peak flow and lung function within and across individuals.

Bioassay Basics

High School – University of Minnesota

Bioassay activities using lettuce seeds are demonstrated. These simple and inexpensive investigations can be used by toxicologists with middle and high school students.

Enviromysteries: "Breaking the Mold" and "Water + ? = Trouble"

Middle School – Maryland Public Television

Toxicologists can use these videos, and video clips from the Breaking the Mold video at:

<http://enviromysteries.thinkport.org/breakingthemold/lessonplans/>, with grade 5-9 students when addressing environmental toxicants and exposures -specifically, sources of indoor & outdoor air pollution, and the topics of asthma and of water-born illnesses.

Breaking the Mold -- <http://enviromysteries.thinkport.org/breakingthemold/>

Water + ? = Trouble – <http://enviromysteries.thinkport.org/watertrouble.html>



Novel Approaches to Engaging Toxicologists in K-12 Science Education and Outreach

Society of Toxicology, March 25, 2004

Tox-in-a-Box and EH Fact Files

K-12 – University of Washington

Tox-in-a-Box is a literal and virtual suitcase of materials that can be used by toxicologists for many presentations to a wide range of students. The kit includes activities, slides, demonstrations, and a script of explicit instructions and tips for the presenter. The kit's materials are focused around five principles of toxicology and environmental health.

EH Fact Files is a resource that can be used by toxicologists to prepare for a classroom visit. This tool helps toxicologists distill complex scientific and historical information about specific health topics into age-appropriate language.

Health of the Respiratory System and Paper Chromatography to Explore our Environment

Middle School – Texas A&M University

Anatomical specimens and engaging activities are directed at the functions and health of the respiratory system.

Paper chromatography will be demonstrated to help toxicologists show teachers how to use this procedure to illustrate a scientific method in exploring the environment. Questions to be answered include: What is paper chromatography? What is differential affinity? How do you interpret chromatograms? How is paper chromatography used today? How much does it cost and where do you find needed materials? How does it match state standards?

11:10 Discussion and Q&A

Dave Eaton

University of Washington

Craig Marcus

University of New Mexico

Liam O'Fallon

National Institute of Environmental Health
Sciences

11:30 Conclude



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