



Awards Committee announces Nominations now being accepted for Outstanding Science Educator

Don't be shy...

**Nominate a colleague for the 2010
CSTA Outstanding Science Teacher
Award.**

**We would like to have applications
for Elementary, Middle School and
Secondary nominees.**

**Awardees will be honored at an
Awards Banquet April 2010.**

**Visit CSTA's website csta-us.org for
award requirements and to down-
load an application.**

Deadline: January 18, 2010

For addition information please contact:

Dr. Ralph J. Yulo Jr.

Box 217, Eastford, CT 06242-0217

Phone; 860-974-0599

E-mail: <oluy@aol.com>



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2009 Conference Highlights

Rachael -

Please share my congratulations with the entire CSTA Board and event committee members who worked so hard to make today's conference such a huge success. Hamden Middle School proved to be an uplifting and welcoming site.

The exhibit hall was absolutely bustling with vendors and browsers.

Everything ran so smoothly thanks to the time and energy volunteered by so many CSTA people. There were certainly plenty of learning opportunities — between the keynote speaker, the exhibitors and so many enticing workshops.

I can't think of anything I would change; keep up the good work!

Elizabeth Buttner

K-8 Science Consultant

*MSP Program State Coordinator-Science
Connecticut State Department of Education
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Science Home Page: <http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&q=320890>

CSDS website: www.ct.gov/sde



Some photo highlights of the conference:

Photo Credits : Anita Boltz



Ed Buckbee Conference Keynote speaker auto-graph his book *The Real Space Cowboys*.



We are ready for registration!



FIRST Robotics Team from New Haven presents their work in STEM Hallway.



Shades of Indiana Jones! Energy & Motion exhibit



NASA Space Camp Enthusiasts at Conference. (L-R) Louise McMinn, Ed Buckbee and Rachael Manzer, Conference Chair.

Connecticut Science Teachers Association, Inc.

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Statement of Ownership

The Connecticut Science Teachers Association Newsletter is produced for the benefit of its membership.

Opinions and comments published herein do not necessarily reflect the policies of CSTA, the CSTA Board of Directors, or the Executive Committee.

Information published was accurate at the time it was received.

Articles from the membership or other science education sources—short or longer—about science education are welcome.

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KEYNOTE FOR THE 2010 SCIENCE EDUCATION CONFERENCE

By Rachael Manzer*

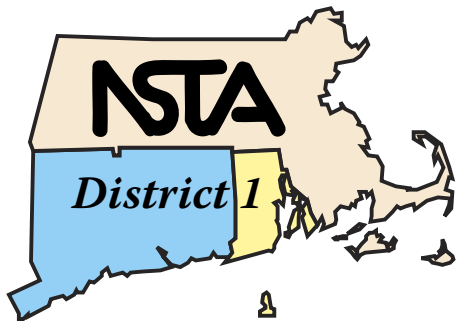
The Keynote for the 2010 Science Education Conference has been reserved. His name is Jeff Winokur. Center for Science Education, Education Development Center in Newton, MA. He has just been recently published for *Science and Literacy* by Heinman.

“The twenty-first century has brought with it considerable buzz surrounding the connections

between science and literacy. Karen Worth and her colleagues have been at the center of this discussion for more than a decade, and they share their very practical ideas and insights.”

**Rachael Manzer is Conference Co-Chair for the 2009 Connecticut Science Educators Conference. The Conference is tentatively set for November 7, 2010*





By Marilyn Richardson
NSTA District I Director

Message from your District Director:

Happy Holidays to everyone.

First of all, I would like to congratulate your organization on an excellent fall conference. The new location was wonderful. I enjoyed speaking with many of you. My only regret is that I wasn't able to attend more sessions. The one session that I did attend and the keynote speaker were very worthwhile. I've already used information from both in the classroom.

I have several items that I want to make sure you are aware of. Registration is now available on line for NSTA Philadelphia, <http://www.nsta.org/conferences>. Click on 2010 National Conference in Philadelphia. The deadline for early bird registration is Jan.22. Remember as a member of NSTA you save \$74 on a two to four day registration. If you have never been an NSTA member and would like to join, contact me marilyn@pcom.com and I can get you a \$5 discount on your first year's membership. That makes membership complete with an NSTA journal of your choice only \$69. If you already are a NSTA member, you can go on line at <http://www.nsta.org/membership/contactupdate.aspx> to make sure your contact information is correct and to sign up for one or more of the 12 NSTA list serves which include all Science disciplines, Technology, Elementary, New Teachers and Retired. Also, consider becoming more involved with NSTA by volunteering for one of the many Standing Committees. Most of the committees meet once a year at the National Conference and conduct other business via e-mail or conference calls. To find out about the many opportunities, go to <http://www.nsta.org> and click on About NSTA: Leadership and Guidance. Deadline for applying for these committees is Dec. 10th.

I hope to see some of you in Philadelphia.

Marilyn Richardson
NSTA District I Director
marilyn@pcom.com



CSTA member of the month

Did you know that CSTA has a random drawing to select a "Member of the month?"

Every month we are randomly selecting a CSTA member and we are having a gift sent out *Compliments of Educational Innovations*.

You may receive a notice that you are the lucky winner this month!

The lucky winner of CSTA member of the month for **September** —

Rosalie Zonder
Ivoryton, CT 06442

October —

Richard Mellen
Danielson, CT 06239

November

Jeffrey Thomas
Easton, CT 06612
Congratulations and have a great school year.

Dave Grigociewicz
CSTA Middlesex Director
GrigociewiczD@region10ct.org



Address Changed??



Let CSTA Membership Chair Eloise Farmer know if any of your e-mail, or home, or school addresses have changed.

Contact Eloise either by:
E-mail: eloise@cssaonline.net

Terry Wilson appointed CSTA Membership *cochair* at last board meeting. Members can reach Terry at: terryw711@sbcglobal.net



Deadlines for article or story submission:

CSTA Newsletter
August 15, November 15, February 15
and April 15.

CSTA Journal Science Education
September 15 March 15.

Visit CSTAs web site at:
www.csta-us.org

Membership Dues

For 2009-2010

Dues for CSTA Membership have been due and payable for '09-'10.

The money from your dues supports publishing of the Newsletter, the Journal, funding of grants, and support for various activities scheduled throughout the year — such as the Awards Program and the Connecticut Science Educators Professional Development Day. If you have already paid your dues for '09-'10, you can ignore this notice.

If you need to make your membership in CSTA current, return the membership form from the membership renewal notice mailed to you and return it with your check to:

Membership
Connecticut Science Teachers Association
P.O. Box 5
Middletown CT 06457
Membership forms can also be obtained from
CSTA's web site: www.csta-us.org



WE KNOW IT'S EARLY BUT ...

◆◆◆ Save the Date ◆◆◆

Connecticut Science Educators
Annual
Professional Development Conference
Tentatively November 6, 2010
Tentative Location: Hamden Middle School
Hamden, Connecticut
Keynote Speaker
Jeff Winokur
Other details
To Be Announced at a later date

As a CSTA Member in good standing, you will receive the member rate to attend the Conference and other events.



Got News ?

If you know of events, activities, or workshops being offered, let the Newsletter Editor know about them.

Contact Ray Delehant by e-mail :
delay637@snet.net

DO YOU KNOW WHERE YOUR MSDS's ARE TONIGHT?

ON CAUTION

SAFE SCIENCE: BE PROTECTED!

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I. CODE RED!



Would you know what to do if a student or you had a laboratory accident with a hazardous chemical? Equally important, would the responding school nurse know what to do? Has a protocol been established in case there is a "Code Red" in the science laboratory relative to finding out what hazardous chemical was used and what its exposure can do to the body?

OSHA wants your employer under the Laboratory Standard (29CFR1910.1450) to establish a written Chemical Hygiene Plan containing Standard Operating Procedures to be used in case such an emergency takes place. An integral part of that SOP is access to Material Safety Data Sheets or MSDS. The access piece is actually located under the Hazard Communications Standard (HCS) (29CFR1910.1200). In essence, these two standards work in concert for the science teacher as an employee of the school district.

II. OSHA Says!

The requirement for MSDSs under the HazCom Standard 29 CFR 1910.1200 is referenced in several parts of the standard. The following quotes represent a few of the more important citations for science teachers relative to laboratory work and use of hazardous chemicals:

§1910.1200(a)(1)

The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and employee training.

1910.1200(e)(1)

Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:

§1910.1200(e)(1)(i)

A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and,

§1910.1200(q)(8)

The employer shall maintain in the workplace copies of the required material safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access, microfiche, and other alternatives to maintaining paper copies of the material safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

§1910.1200(g)(10)

Material safety data sheets may be kept in any form, including operating procedures, and may be

designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their

OSHA requires that all chemical containers be properly labeled with Material Safety data labels.



Sample Label

Source: <http://expresstechnology.com/Safe->

work area(s).

III. Is There A Specific MSDS Format Required?

MSDSs are a critical component of the United States Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard. This standard mandates that workers such as science teachers have a right to know what hazards are associated with the chemicals they use in the workplace. Both manufacturers of chemicals and employers with chemicals in their workplace, must be in compliance with this regulation as it is the most often cited violation by OSHA, with fines of more than \$70,000 per violation per instance.

The OSHA MSDS format has the following required categories that must be on every MSDS:

- Section I. Manufacturer's Name and Contact Information
- Section II. Hazardous Ingredients/Identity Information

Section III. Physical/Chemical Characteristics
 Section IV. Fire and Explosion Hazard Data
 Section V. Reactivity Data
 Section VI. Health Hazard Data
 Section VII. Precautions for Safe Handling and Use
 Section VIII. Control Measures

The American National Standards Institute (ANSI) approved an alternative format and published a standard Z400.1-1993, "American National Standard for Hazardous Industrial Chemicals-Material Safety Data Sheets-Preparation."

The 16 sections of an MSDS that are prescribed by the ANSI standard are as follows:

- Section 1. Chemical Product & Company Information
- Section 2. Composition/Information on Ingredients
- Section 3. Hazards Identification
- Section 4. First Aid Measures
- Section 5. Fire Fighting Measures
- Section 6. Accidental Release Measures
- Section 7. Handling and Storage
- Section 8. Exposure Controls/Personal Protection
- Section 9. Physical and Chemical Properties
- Section 10. Stability and Reactivity
- Section 11. Toxicological Information
- Section 12. Ecological Information
- Section 13. Disposal Considerations
- Section 14. Transport Information
- Section 15. Regulatory Information
- Section 16. Other Information

The information provided by MSDSs should not only be reviewed by the science teacher prior to use of the hazardous chemicals, but also shared with students in the laboratory.

IV. Final Thoughts!

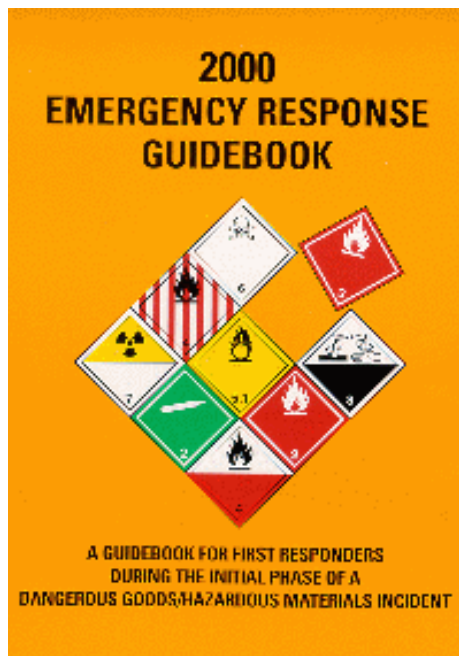
In summary, science teachers as employees have protection under OSHA's HazCom Standard. Part of that program required direct access to MSDSs. It can be in a notebook, computer program or accessed from an Internet site. Below under Resources is a useful list of MSDS sites on the Internet.

It is advisable for teachers to have the printed format for immediate access in the lab, should a safety incident occur. Check out the sites if you need an MSDS and download it ahead of time. As they say, better safe than sorry!!!

Live Long & Prosper Safely!

Resources:

Occupation Safety & Health Administration:



<http://www.osha.gov/dsg/hazcom/ghs.html>

MSDS on the Internet

Where to find MSDS on the internet

- <http://www.ilpi.com/msds/>
- National MSDS Repository
- <http://www.msdssearch.com/>
- University of Akron
- <http://ull.chemistry.uakron.edu/erd/>
- Oxford University
- <http://physchem.ox.ac.uk/MSDS/>
- University of Vermont
- <http://siri.org/>
- JT Baker/Mallinckrodt
- <http://www.mallbaker.com/americas/catalog/default.asp?searchbrd=b&sku=&>
- Kodak
- <http://msds.kodak.com/ehswww/external/index.jsp>
- Sigma-Aldrich
- <http://www.sigma-aldrich.com/>
- http://www.sigmaldrich.com/Area_of_Interest/The_Americas/United_States.html
- VWR
- <http://www.vwrsp.com/search/index.cgi?tmpl=msds>
- International Chemical Safety Cards (ICSCS)
- <http://www.cdc.gov/niosh/ipcs/icstart.html> - Main Site - Several languages available
- <http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/index.htm>

◆◆◆

Teaching the Teachers

http://www.nsf.gov/news/news_summ.jsp?cntn_id=115775&WT.mc_id=USNSF_51

When science teachers do research in university labs, their students ultimately benefit--and it shows in their state assessments



Anita Edwards did research on nitrogen greenhouse gas emissions from wastewater treatment processes. Credit: Summer Research Program for Science Teachers, Columbia University

October 15, 2009

Research experiences for science teachers can have a direct impact on the achievement of their students, increasing their performance significantly on state assessments. There are also economic benefits--to the schools and to society at large--in having science teachers take part in research experiences. These are the findings Samuel C. Silverstein of Columbia University and colleagues describe in the Oct. 16 issue of *Science* magazine.

Silverstein, who is a past chairman of the Department of Physiology and Cellular Biophysics and professor of medicine at Columbia's College of Physicians and Surgeons, is also founder and director of Columbia University's Summer Research Program for Secondary School Science Teachers (CUSRP).

CUSRP is a program that brings middle and high school science teachers from the New York City metropolitan area to Columbia's campuses to work on research projects, under the guidance of faculty mentors, for two successive summers. Funded in part by the National Science Foundation, the teachers work in all scientific disciplines represented at Columbia University, from biology and medical sciences to chemistry physics, astronomy, engineering, and earth sciences. A few teachers have even done research at sea on one of the National Oceanic and Atmospheric

See Teachers page 6

Students Least Informed about Environmental Science Are Most Optimistic

NSF-FUNDED RESEARCHER LOOKS AT KNOWLEDGE AND attitudes about the environment among 15-year-olds who took part in the latest Programme for International Student Assessment (PISA)



A person stands underneath a natural arch in a glacier at Norsel Point, Anvers Island, Antarctica. Credit: Glenn Grant, National Science Foundation April 21, 2009

Will problems associated with environmental issues improve in the next two decades? According to an analysis of student performance on PISA 2006--an international assessment of 15-year-olds--students who are the best informed about environmental science and the geosciences are also the most realistic about the environmental challenges facing the world in the next 20 years. Meanwhile, students who are least informed in these areas are the most wildly optimistic that things will improve.

These attitudes are among the results presented in *Green at 15?*, a study done by sociologist David Baker and colleagues at Pennsylvania State University, in collaboration with a team of researchers at the Organisation for Economic Co-operation and Development, or OECD, an international organisation that helps governments tackle the economic, social and governance challenges of a globalised economy. A PISA assessment is done every three years. PISA 2006 focused on science, assessing the knowledge and skills of more than 400,000 students in 57 countries around the world.

"PISA is a very large study, and there is a lot of material that's not covered in their final report," Baker said. "It seemed to me that, given all the attention the environment has captured, it would be useful to know what 15-year-olds know and think about the environment, particularly environmental science and geoscience."

The report looks at two broad areas: achievement, or "scientific literacy," and students' attitudes about the environment. In the area of achievement, American students' performance was typical of other PISA assessments, with scores in the middle

of the pack.

The assessment used a combination of multiple choice and fill-in-the-blank questions to give students an opportunity to analyze and interpret data. For example, a question on the Greenhouse Effect included graphs showing carbon dioxide emissions and the average temperature of Earth's atmosphere over time and asked students what information in the graphs supported a relationship between temperatures and carbon dioxide emissions.

Seventeen percent of American students demonstrated the highest level of proficiency (referred to as Level A), indicating that they could consistently identify, explain and apply scientific knowledge to a variety of environmental topics. They also demonstrated the ability to link different information sources and explanations and use evidence from those sources to justify decisions about environmental issues. At the other end of the spectrum, 42 percent of American students performed at or below Level D. Students at this level showed difficulties answering questions containing scientific information relevant to basic environmental phenomena or issues.

In addition to gauging students' level of optimism about the environment, the portion of PISA dealing with attitudes about the environment assessed students' familiarity with and sense of responsibility for environmental issues. *Green at 15?* showed that the vast majority of students were familiar with issues including air pollution, energy shortages and extinction of plants and animals. For most countries, there was no strong association between the students' sense of responsibility for environmental issues and their proficiency in environmental science.

In another finding, 55 percent of participating U.S. schools had a specific course in environmental science, compared with 21 percent of such courses in schools in OECD member countries. In other countries this content is sometimes captured in geography class, a less common course in the U.S. According to Baker, these are good results for environmental educators to consider here in the U.S.

"The publication of this new study should inform school systems about how well they are doing in addressing important scientific issues about our earth and its environment," said Larry Suter, program manager at the National Science Foundation. "This report has applied the methods

of scientific investigation to the study of a topic of concern to educators, scientists, and the general public."

Green at 15? can be ordered or downloaded from the OECD Web site.

http://www.oecd.org/document/22/0,3343,en_32252351_32236191_42466966_1_1_1_1,00.html

-NSF-

Principal Investigators

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Press Release 09-079

Get NSF News Updates by Email

Useful NSF Web Sites:

NSF Home Page: <http://www.nsf.gov>

NSF News: <http://www.nsf.gov/news/>

For the News Media: <http://www.nsf.gov/news/newsroom.jsp>

Science and Engineering Statistics: <http://www.nsf.gov/statistics/>



Teachers from page 5

oceanographic research vessels.

Silverstein's Science paper describes how, over time, students of teachers who participated in CUSRP outperformed other students in New York State's Science Regents examinations (the state's annual assessment) by 10 percentage points.

Silverstein and his co-authors, including Columbia economist Sherry Glied, also document the economic benefits to students, Departments of Education, and society at large of making this kind of experience widely available to science teachers. They estimate that the program returns to New York City's Department of Education \$1.14 within four years for every \$1 its sponsors have invested in it. These savings are realized from increased teacher retention and decreased need for students to repeat coursework.

They also suggest that this approach is likely to benefit society generally by increasing the number of students completing high school.

-NSF-

Principal Investigators

Samuel C. Silverstein, Columbia University
College of Physicians and Surgeons (212) 305-3546 scs3@columbia.edu



Teacher Expectations and Student Achievement (TESA)

Teachers want to grow in their ability to reach all students. Unfortunately, other than the once a year formal evaluation, teachers do not have a mirror into their teaching. Without knowing their strengths and weaknesses, teachers cannot grow. Teachers who want to grow in their teaching can pursue the TESA program.

Teacher Expectations Student Achievement (TESA), a popular professional development program, emphasizes that teachers treat high achievers drastically different than low achievers and therefore, the low achievers do, in fact, achieve less. TESA affirms that when low achievers are treated in the same way as high achievers, they achieve more. TESA helps to reduce bias in terms of gender and ethnicity in the classroom while, at the same time, increasing the positive learning climate.

TESA has several strands. The first strand, response opportunities, includes equitable distribution, individual help, latency, delving, and higher-level questions. The next strand, feedback, consists of affirm/correct, praise, reason for praise, listening, and accepting feelings. The last strand, personal regard, incorporates proximity, courtesy, personal interest and compliments, touching and desisting.

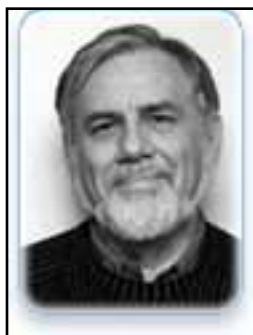
Another teacher in the TESA program watches the classroom teacher for one interaction in each strand during an observation. For example, the observer may analyze the presence of equitable distribution, affirm/correct, and proximity during one visit. Usually the classroom teacher selects five high achievers and five low achievers; the observer does not know the designation of any student. When the class is done, the observing teacher gives the objective score for the presence of these interactions for each student. Since this is a *teacher to teacher* peer evaluation, there is no threat to the teacher; on the contrary, the classroom teacher looks forward to having a mirror into his/her teaching.

The most common reaction to a TESA observation is "I didn't realize that I" Each person's revelations are different. Teacher A is shocked to find out that whenever he asks a question to high achievers, he consistently waits five seconds (latency) for them to answer the question; however, when he asks a question of low achievers, he only waits for five seconds ten percent of the time. Likewise, teacher B discovers that she almost always affirms or corrects the answers of high achievers while she usually (seventy five percent of

the time) glosses over the answers of low achievers with neutral statements like "Let's hear some other answers." Similarly, teacher C has the epiphany that when high achievers respond incorrectly to his questions, he delves with additional questions to help those students to be successful. Unfortunately, he rarely (less than ten percent of the time) delves when low achievers have an incorrect answer.

These observation results serve as an educational awakening to classroom teachers. Once they realize what really has been happening in their classroom, they can begin to make changes and implement strategies to help them provide equitable treatment to all students. A teacher who has a low distribution score for non-achievers decides to put each student's name on a three by five card to insure that he calls on each student equally. A teacher who does not allow latency for low achievers starts to count silently to herself after she asks any question to guarantee that all students will be given five seconds to think through an answer. A teacher who has rarely praised low achievers makes it a habit to praise every student each time they respond; he even posts some praise comments on a wall to help him have different statements.

Teachers who have gone through the TESA program verify that the program can make a tremendous difference in their professional life. They begin to change some or all of the fifteen interactions in the classroom. All of the students notice the difference as the learning expectations and actual learning increase in the classroom.



Dr. Harry Grover Tuttle focuses on assessing and improving student learning through low- and high-tech tools.

Dr. Harry Grover Tuttle
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POSTED ON HOTCHALK.COM

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Professional Development Opportunity for Educators - Project Dragonfly

OXFORD, Ohio - Miami University's Project Dragonfly is accepting applications now for its 2010 graduate field courses and master's programs offering international field and conservation studies in Africa, Asia and the Americas.

Each accepted applicant is awarded a tuition scholarship covering 2010 field course tuition, equivalent to \$3,100 in-state and \$7,100 out-of-state.

Award recipients are responsible for travel and field costs.

The deadline to apply is Thursday, January 28, 2010.

Created by Dragonfly and the Cincinnati Zoo & Botanical Garden, Earth Expeditions graduate courses and the Global Field Program (GFP) Master's degree bring together graduate students, scientists, educators and community leaders at critical conservation field sites in Belize, Costa Rica, Baja, Trinidad, Mongolia, Thailand, Kenya and Namibia.

New in 2010 are courses in Borneo and the Amazon.

Earth Expeditions courses and the GFP Master's may be completed part-time from anywhere in the U.S. or abroad and are open to educators and other professionals from all settings and disciplines, regardless of academic focus. For information and to apply, visit:

- Earth Expeditions <http://www.EarthExpeditions.org>
- Global Field Program <http://www.MastersGFP.org>

Project Dragonfly reaches millions of people each year through inquiry-driven learning media, public exhibits and graduate programs worldwide. Dragonfly is housed at Miami University, a state university in Oxford, Ohio, established in 1809 and listed as one of the eight original Public Ivies.

CONTACT: Jamie Bercau Anzano; 513.529.5103;
dragonfly@muohio.edu

Project Dragonfly
Miami University
Oxford, Ohio 45056
513.529.5103



2009-2010 Snow Spotter Network

Weather Works, a private meteorological consulting firm, will be coordinating the Snow Spotter Network for the fifth consecutive season. This program is designed to incorporate real-time observations to help meteorologists during and after snow events. The number of schools and volunteers using the program has continued to grow, with over 60 participating volunteers last year. All schools are encouraged to participate in this free, entirely web-based program.

We are looking for students to become “designated snow spotters” as they would be recording a snowfall measurement at home after each snowfall and then submitting the report by logging onto the Snow Spotter website. Teachers are also encouraged to use the Network and submit totals. Spotters simply go to <http://www.weatherworksinc.com/snowspotters/index.php> to be a part of the Network and send in snow observations. There is no “signing up” involved.

The web site will easily explain how to submit totals and also includes an educational presentation on the proper procedures for how to measure snow. Snow totals from other observers are also available on the site. Students can utilize the opportunity for volunteer work, while teachers may use the network in the classroom. For any questions or additional information, please contact Sean Rowland at seanrowland@weatherworksinc.com or call 1-800-427-3456.



http://exploravision.com/request-entry-kit/coach-login.php?utm_source=nsta-email-5&utm_medium=email&utm_campaign=nsta-email&tc=2010-nsta-email4

EXPLORAVISION AWARDS 2010:

REGISTRATION NOW OPEN

Tomorrow's innovations come from today's young minds.

If your students already have an idea for your ExploraVision project, it's time for them to start their research. Remember: A winning team receives \$10,000 savings bonds and a trip to Washington, D.C.!

ExploraVision is a science competition sponsored by Toshiba and administered by the National Science Teachers Association. It encourages K – 12 students to create and explore visions of future technology. Entries are due on February 2.

Research tips for teachers:

- Encourage your students to take a trip to the library. This will spark their curiosity and help them see that there are volumes of information from which to draw. For more on research, go to: <http://www.exploravision.org/student->

resources/research.php?utm_source=nsta-email-5&utm_medium=email&utm_campaign=nsta-email&tc=2010-nsta-email4

- Point out to students that research doesn't have to mean reading only books. They can examine magazine articles, newspapers or the Internet. They can even interview experts on their chosen topics.

- When doing online research, advise your students to pay attention to domain name extensions. Sites having the extensions ".edu" (educational institution), ".gov" (government) or ".org" (non-profit organization) represent institutions and tend to be more reliable than private sites.

We hope these tips are helpful as your team researches its ExploraVision project. And, most of all, we hope you have fun!

Good luck!

The ExploraVision Team

Become a fan of ExploraVision on Facebook and follow us on Twitter.

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A Comprehensive Approach to Teaching about the North American Lobster (*Homarus americanus*)

The North American lobster – *Homarus americanus* - is a fascinating marine animal more sophisticated than you might think. That is why it is the subject of a new manual for science teachers who teach Grades 9-12.

As you would expect from a science teaching manual, this manual is filled with facts about the lobster's physiology, habits, personality and behavior. But it goes beyond these topics to include the history of the lobster industry in the Northeast, threats to the lobster's environment and conservation rules and practices designed to protect and prolong the lobster population. The material is presented in a teacher and student friendly style, complemented by a CD with 69 illustrations, most in full color. The author is a writer who collaborated with a marine biologist and documented 17 different sources of information as well as performing extensive background reading to

produce this manual. The manuscript was reviewed by three high school science teachers, a second lobster scientist and a natural science educator at a state aquarium.

Tie-ins to Ocean Literacy Principles and National Science Education Standards (NSES) 1

The material in the teaching manual ties in to Ocean Literacy Principles and NSES standards as described in an Ocean Literacy brochure published by the National Geographic Society in 2007.

Principles:

1. The ocean supports great diversity of life and ecosystems

2. Interconnectedness: oceans and humans are inextricably interconnected

Life Science (NSES Standard):

- Interdependence of Organisms
- Behavior of Organisms
- The Cell

Personal and Social Perspectives (NSES Standard):

- Population Growth
- Environmental Quality
- Nature and Human-Induced Hazards

1 2007 NATIONAL GEOGRAPHIC SOCIETY

Where to use this material

This material can be included in the core science curriculum, or it can be used effectively in summer school programs, enrichment programs, special projects, and gifted and talented programs. Throughout the manual there are questions and exercises to stimulate student learning and thinking.

Interested in learning more? Go to the publisher's website at www.georgesmithpublishing.com. There you will see sample pages and ordering information. Thank you.

George Smith, author and publisher

