

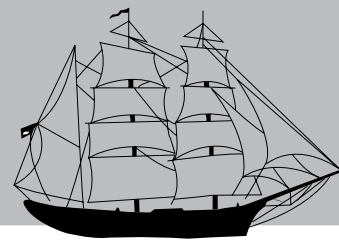
MASTHEAD

MASSACHUSETTS ASSOCIATION OF SCIENCE TEACHERS

State Chapter of the National Science Teachers Association

Vol. 37 No. 3

Spring 2010



MAST

www.MassScienceTeach.org

From the President

Linde Eyster

Each year, the MAST Board holds a two-day retreat at an inn somewhere in the middle of Massachusetts. The retreat, lasting from Friday night to Saturday afternoon in the dead of winter, allows us to have longer discussions on a single topic than we have at our regular Board meetings. This year 14 board members attended the retreat and spent the time thinking about you—the present and future MAST members—and how we might reach out more effectively to you throughout the year. Much of our conversation focused on thinking of ways that your County Director could organize local meetings that might be easy for you to attend without driving too far or having to get time off from school.

If your County Director has not contacted you yet to say hello, watch for a message from him or her in the next few months. And if you do not know who is/are your current County Director(s), look on the inside cover of the MASThead. For further information, you can also go to our website www.MassScienceTeach.org. Additionally, Mary Hatton, our Chair of Professional Development, is keeping tabs on activities of the County Directors and you are welcome to contact her with ideas for what types of meetings would be most useful to you during the school year. If you are already a MAST member and would be interested in serving with Mary on the PD Committee, please contact her. If you know colleagues who are not yet members, talk to them about joining MAST and becoming part of these local meeting groups.

What does it mean if a County Directorship is labeled in the MASThead as “vacant”? It means that no one was elected this year for the job and if you are

a teacher of science in that county then you might want to apply! We meet four times per year, from 5-8 pm on a Thursday evening. Serving on the Board as a MAST representative for your county is a great way to meet other dedicated teachers from across the state and is a great form of professional development. If the county where you teach has an opening for County Director and you might be interested in learning more about working with MAST, please contact Mary (mhatton@endicott.edu).

Just a reminder: our December 2009 issue of the MASThead was only a digital version, and was posted on our website, to save on paper, printing, and shipping. The issue includes some photos from the 2009 Conference. If you attended the conference, maybe a photo of you participating in a workshop is posted. Check it out.

MAST Board members have been working on the next annual conference for the past few months and are now finalizing plans for “*Conference 2010: Science Now*”. Topics on all subjects are welcome but there will be a special strand for elementary teachers of science. By the time you read this letter the deadline to submit a proposal to serve as a presenter may have passed, but you can check on line to see if any presenter slots are still available.

Save the dates: Conference 2010 will be 21-22 October, in Boxborough. We hope that you will mark your calendar so that at the beginning of the school year you remember to quickly submit your request for time off so that you can attend the conference.

**Annual Fall Conference
Registration Form Available Online Now
www.MassScienceTeach.org**

MASTHEAD

The MASTHEAD is published by the Massachusetts Association of Science Teachers. Members receive four issues per year in September, December, March and June. The MASTHEAD is published for those interested in the advancement of science education. This publication provides information about science activities, and opportunities around the state and the nation, as well as sources for materials for science teachers. An additional feature includes a calendar of events related to science education as well as ecology, and the environment. It also serves as a forum for ideas and classroom strategies.

The staff of the MASTHEAD and the Board of Directors of MAST assume no responsibility in the case of injury or loss by persons using any information material in this publication.

Editor: Kenneth Brody

20 Mountain St., Sharon MA 02067
e-mail: kwbrody@mit.edu
Tel. 781-784-5040

Editorial Staff Joann Blum

17 Edson Ave, Rutland MA 01543

Subscriptions: Regular: \$20.00, Foreign: \$20.00

Write: MASTHEAD

127 Malvern Road
Worcester MA 01610

Membership: Regular: \$20.00, Foreign: \$20.00, Student: \$5.00.

Write: Sr. Kathy Livingstone, Membership Chair

127 Malvern Road
Worcester MA 01610

e-mail: skathy@charter.net

Donations: Gifts and donations will be accepted for the advancement of science education.

Advertisers: If you are interested in advertising in the MASTHEAD, contact one of the editors. We accept copy ready ads or business cards four weeks preceding the first of the month of publication. Space available basis only. Check our web site for rates at www.MassScienceTeach.org/ads.html

Submissions: Material to be published in the MASTHEAD must be submitted to the editors one month before the publication date.

DEADLINES: August 1 for the Fall Issue, November 1st for the Winter issue,

February 1 for the Spring Issue and May 1 for the Summer issue.

MAST Committee Chairs and Positions

Standing Committees

Awards Chair	Dr. Gary Mazzola	
Website Content Chair	Don Donovan	508-339-1694
Budget/Finance	Joann Blum	
Elections	William McSweeney	
Membership	Sr. Kathy Livingstone	
Professional Development	Mary Hatton	
Publications	Ken Brody	781-784-5040
2010 Conference Chairperson	Lynn Gatchell	508-693-0974
2010 Conference Presenter Chairperson	Pat Harcourt	508-457-5221

Corrections: Please email any corrections or changes to kwbrody@mit.edu.

Please consider volunteering for a committee either as a chair or as one of the committee members. Thank you!

MAST BOARD

Executive Board

President	Linde Eyster	617-361-1731
Pres-Elect	Lynn Gatchell	508-693-0974
Vice-Pres	Pat Harcourt	508-457-5221
Secretary	Therese Goulet	508-867-4268
Treasurer	Caryl Adamowitch-LaPorte	978-345-0413

County Directors

Barnstable	Charlie Bresnahan
Berkshire	Mark Hungate
Bristol	Dr. Gary F. Mazzola, Jessica Sanchez
Dukes/Nantucket	Connie Alexander
Essex	Amy Deacon, Mary Hatton
Franklin	(1 Vacant)
Hampden	(2 Vacant)
Hampshire	(1 Vacant)
Middlesex	Christy Kervis, Bradd Smithson, Carol Shestok, Joyce Croce*, (3 Vacant)
Norfolk	Betsy Willis, Steve Cremer*, Mary Young*
Plymouth	Warren Phillips, Jim Spinale*, Aimee Shanahan, Maureen Moir*
Suffolk	Tom Hocker, Stephanie Selznick
Worcester	Michele Daigle, Duke Dawson, Judith Cournoyer, William McSweeney*, Len Pacek*

* Director Emeritus

Past Presidents

Marilyn Richardson	2004-2008
Louise Palanzi	2002-2004
Kathy Vivolo	2000-2002
Joann Blum	1998-2000
Joyce Gleason	1996-1998
Roland Stern	1994-1996
John Kania	1992-1994
John Gow	1990-1992
Ron Wilmot	1988-1990
Sister Kathy Livingstone	1985-1988
Lois Durso	1984-1985
Joreen Piotroeski Hendry	1983-1984
Robert Krikorian	1982-1983
Carolyn McClure	1981-1982
William Horner	1980-1981
Wayne Allen	1979-1980
Russell Stanhope	1978-1979
Chet Corkum	1977-1978
David Byron	1976-1977
Doris Barber	1975-1976
Harold Chapman	1974-1975
William Hardin	1973-1974

MAST

MASSACHUSETTS ASSOCIATION OF SCIENCE TEACHERS

PO BOX 771

WORCESTER, MA, 01613-0771

www.MassScienceTeach.org



Printed on recycled paper.

Gordon Estabrooks

1927-2010

I first met Gordon in 1986 at a four week NSF summer institute at Simmons College. At that time he was head of the Science Department at Boston Latin School, a position that he held for over 25 years. I quickly realized what a giving person Gordon was. He invited our entire group up to Maine for a day-long workshop at KELP (Kennebunk Enrichment Learning Program which was founded by Gordon).

As years went on, I would frequently hear an excited participant leaving one of Gordon's workshops at MAST exclaiming "I won an aquarium". This was not provided by any company but rather by Gordon himself. He would also often pay the registration fees for young teachers in his school to attend the MAST conference.

After he retired, he continued to make donations to this event, both of his time and money. Gordon never wanted to be acknowledged for his generosity. He just wanted everyone to have the opportunity to enrich their science teaching for the good of the students that they taught. For that reason, as president of MAST, I presented Gordon with the David Byron Award for Outstanding Service to Science Education in 2006.

During his career, Gordon received many other awards, including the Suffolk County Educator of the Year Award, the MAST State Educator of the Year Award and the Mass. Marine Educators Annual Award of Distinction.

In 1998, Gordon was inducted into the Massachusetts Hall of Fame for Science Educators. He remained active on the MAST Board of Directors, rarely missing a meeting.

During the past few years, Gordon's health prevented him from offering workshops at MAST and he instead spent hours helping at the registration desk. He was an incredible gentleman and we will all miss his presence.

Marilyn Richardson, *MAST Past President*



Report From NSTA District Director

Marilyn Richardson, *District I Director*

What is National Lab Day? May 12, 2010 was the first official National Lab Day. A number of events were held throughout the United States, but National Lab Day is more than just a day. It is an ongoing nationwide initiative to build local communities of support that will foster ongoing collaborations among volunteers, students and educators.

University students, scientists, engineers and other STEM professionals are working together with educators and students to bring discovery-based science experiences to students in grades K-12. When an educator posts a project, the system will help them get the resources needed to make that project a reality. The educator could be looking for help with a science fair or a hands-on activity, someone to host a field trip or advise an after-school program or someone to supply lab equipment.

The following is a quote from John Holdren, Science Advisor to President Obama:

We wouldn't teach football from a textbook. It is even more important that America's youth have the opportunity to learn math and science by doing. The President and I strongly support efforts to raise the level of project-based learning, to help cultivate the next generation of doers and makers.

For more information, go to www.nationallabday.org.

Warren Phillips Inducted into National Teachers Hall of Fame



Congratulations to Warren Phillips (Plymouth County Director) for his induction to The National Teachers Hall of Fame. The induction will take place June 17-18, at the Hall of Fame home in Emporia, Kansas.

Warren teaches Grade 7, Plymouth Community Intermediate School in Plymouth.

In his 37 years of teaching, Warren previously received the 2008 Presidential Volunteer Service Award, 2007 Massachusetts Science Educator's Hall of Fame, 2006 Plymouth County Science Teacher of the Year, 2006 USA Today Newspaper Team Teacher, 2004 Disney Middle School Teacher of the Year, 2002 National Excellence Award "Teacher of the Year", and the 1998 Golden Apple Award for Excellence in Teaching.

NSTA Conferences: Past and Future

By Linde Eyster, *MAST President*

Both MAST and NSTA provide conferences each year for teachers of science.

Teachers from Massachusetts just had the chance to enjoy the latest NSTA National Conference, held March 18-21 in Philadelphia. As always, there were lots of workshops, presentations, lectures, field trips, and social opportunities to choose from. And the Exhibit Hall provided hours of excitement and entertainment, as teachers moved from booth to booth learning about new products and services of an astounding number of companies and organizations, and gathering free or purchased items to take back to their classrooms.

Five members of the MAST Board were able to attend the conference and enjoyed a few hours of historical site-seeing on the afternoon before the Conference began. We walked from our hotels to see a variety of sites including the Liberty Bell, Liberty Hall, and Franklin Court. Franklin Court is the site of one of Ben Franklin's homes, built in the 1760's and demolished by his grand children in 1812. On the site of the house now stands a large house-shaped steel frame. Next door is a museum containing information about Franklin's life, inventions, and interests.

The Convention registration was held in a nicely renovated train depot. Workshops and presentations were held in the large conference center as well as in adjacent hotels. One activity of MAST Board members was to speak individually with exhibitors, informing them about the opportunity to join us for our state conference to be held October 21-22, 2010.

I enjoyed all aspects of the on-site conference but one day I also participated in the field trip to Longwood Gardens, one of the most famous gardens in the world. The Conservatory, which covers about 4.5 acres, was filled with impressive displays of interesting plants. On show this season

were orchids of all colors, shapes, and sizes; the garden maintains over 3,000 orchid species, rearing them, depending on their needs, in one of five different greenhouses that vary in temperature, humidity, and lighting. Also in bloom were the blue poppies, an unusual sight.

Part of our field trip was a behind-the-scenes tour of the production greenhouse, which occupies about 30,000 square feet. The green houses are



Longwood Gardens

now used to raise plants that are on display in the conservatory and throughout the grounds. Areas of the greenhouse are also used for horticultural research. For example, they are currently working on developing a camellia variety that will bloom year-round.

The original greenhouses were built for the

du Pont family so that they could grow fruits, such as melons, bananas, and grapes out of season for their family, friends, and staff. We also learned about the wonderful horticultural training opportunities for students and adults.

One of my favorite indoor parts of Longwood was the colorful children's garden, designed in reduced proportions and decorated with delightful animal-shaped fountains. Most of the outdoor plants still had closed buds, so my favorite outdoor part of the garden was the three sustainably-built tree houses. Each tree house was large enough to host a birthday party, and was built using reclaimed lumber and gathered wood. Each structure, although called a tree house, was not supported by the trees; instead it was built amongst the trees on concrete and five-foot long

steel pins that apparently do not harm the roots or trunks of the trees.

Each year NSTA, the parent organization of MAST, holds one National Conference on Science Education in the spring time, and three Area Conferences in various regions of the U.S. in October, November and December. These are great professional development opportunities for you to learn from others and to share your own expertise. The next NSTA National Conference will be held in San Francisco, March 10-13, 2011.

Much closer to home will be the October Area Conference to be held in Hartford, Connecticut October 27-29, 2011. Put those dates on your calendar now! And log on to www.nsta.org for further information.



NSTA Conference attendees Lynn Gatchell, Stephanie Selznick, Linde Eyster, and Marilyn Richardson

Professional Opportunities Learning and Funding

EcoLibrary

We would like to introduce you to EcoLibrary www.ecolib.org, a new resource to help your students learn about the natural world. We believe that good visual images engage students' interests and passions. EcoLibrary was created to give students and teachers free access to high-quality images and useful supporting information. Our goal is to help students learn more about ecology, conservation biology, and environmental issues.

At www.EcoLibrary.org you will find:

- Excellent photographs, all accompanied by detailed and scientifically accurate descriptions
- 360 degree interactive panoramas, from deserts to tropical rainforests around the world
- Thematically linked groups of images for K-12 teachers (such as /Mimicry and Camouflage /or /Ecosystems and Biomes/)
- Cross-links among items; every image in our database leads to related images
- Free use of all EcoLibrary materials, if used for non-commercial, educational purposes

We hope that you will take a moment to browse EcoLibrary.org. You can find materials using:

- 1) a sophisticated text search,
- 2) a visual browse page,
- 3) recommendations by chapter for college textbooks, and
- 4) recommended themes for K-12 class-

rooms. And, make sure to try out the panoramas www.ecolib.org/Panoramas!

To learn more about EcoLibrary, please try our short Flash introduction www.ecolib.org/introduction.

We welcome your feedback about EcoLibrary as well as any suggestions for improvement. Feedback and questions can be sent to info@ecolib.org.

The EcoLibrary Team
Dan Perlman, Founder
Limo Sadalla, Technical Developer
Emily Silver, Image and Panorama Editor

Small Print:

- *Panoramas:* EcoLibrary contains dozens of 360 degree panoramas that give the viewer a sense of being in a specific ecosystem. To download a panorama, click the /Get Panorama & Text/ button, or you may view it directly from the Web by clicking the /View Panorama/ button.
- *Hot-linked metadata:* Any green text on an image page is a hot link that searches the entire database for that topic (e.g., clicking /Tropical savanna/ will display every item in the database categorized as tropical savanna).
- *Related Materials:* Many pages include links to "Related materials," items that we recommend using as a group. Some pages also include pedagogical suggestions on how to use EcoLibrary materials in the classroom.

The Center for Youth Success

My colleagues are developing and testing an online training system to increase effective use of a 16 lesson evidence-based adolescent reproductive health curriculum.

They are looking for 250 high school teachers (grades 8 - 12) throughout the USA to teach Reducing the Risk: Building Skills to Prevent Pregnancy, STD & HIV (RTR) in their classrooms.

Participants must be able to teach the RTR curriculum beginning in the Fall term of 2010.

- Participating educators will receive \$450 plus \$200 worth of materials;
- Free materials include the teachers guide (curriculum), student workbooks (in English and/or Spanish), posters, roleplay cards and activity cards

I know that in many schools the science teachers are also responsible for health, so I'm hoping

Professional Opportunities

my ITEST colleagues working with such teachers can help get the word out, so please forward this to anyone you know who might be interesting in participating in the project.

Interested parties can call the toll free number (877-316-7036), go to the website and click on “sign up now” to fill out the online interest survey (www.rtrworks.com/join) or send an email to

rtrworksproject@etr.org.

Steve Bean, Director

The Center for Youth Success at ETR Associates

4 Carbonero Way, Scotts Valley, CA 95066

(w) 831-438-4060 x176

(c) 831-600-6222

steveb@etr.org

Spring is here! The Peepers are already out and so is MAST. Your County Directors and I are working together to build a stronger network of support with you. Now more than ever there is a need to support one another. I recently worked with the New England Aquarium to bring k-5 pre-service teachers together to learn about MAST. My pre-service students were amazed with the Teacher Resource Center full of free classroom resources available to teachers across the New England states. They have 56 kits plus many artifacts, curricula, posters, literature, etc. If you haven't been by you should check things out there or attend the “Boston Region” MITS institute for Teaching Science, where you will gain lessons

from zoos and museums.

Get more connected with us. Contact your County Director to find out what's going on or tell us what you need. You can contact your County Director at the MAST website. As you consider professional development opportunities, get connected with the MAST listserv by contacting Don Donovan (ddonovan@thayer.org) who sends out weekly information. Lots of programs are happening locally and nationally; advertise your own through the MAST listserv. Watch the MAST website; it is expanding and growing with resources to help you meet your needs.

Mary Hatton



Fulcrum Institute Summer Energy Workshop

In collaboration with the Massachusetts Association of Science Teachers and the New England Section of the American Physical Society, and thanks to generous funding by the National Defense Education Program, the Fulcrum Institute invites K-8 teachers to participate in a Summer Energy Workshop.

- Spend three full days doing science investigations and making discoveries.
- Work with Tufts physicists, Fulcrum teachers and Fellows, and curriculum specialists.
- Receive a \$200 honorarium, a supply of materials related to the topic of Energy, and 18

PDPs.

- Come away with new ideas to share with your students and colleagues when you return to school in the fall.

As with all Fulcrum events, the focus will be on developing content knowledge and shifting pedagogical classroom practice.

Apply online by April 30th at fulcrum.tufts.edu. Limited Space Available

Dates: August 10-12, 2010

Location: Tufts University, Medford, MA

Questions: Carole.bersani@tufts.edu

Because of the content and format of the workshop, priority will be given to teachers that have completed the Fulcrum Institute, but all K-8 teachers are welcome to apply.

2010 Summer Institutes

MIT, Inc. Museum Institute for Teaching Science Interactions in the Sciences: Observe, Investigate, Explain. Explore how cycles, processes and systems connect life, physical and earth science

July 6-9 & July 12-16 for Upper Elementary and Middle School Educators.

A minds-on, hands-on professional development experience that will provide you with scientific knowledge, classroom investigations and a network of resources. Offered in seven regions of Massachusetts and southeastern New Hampshire.

Spend 1-2 days at each partner organization as you participate in content and skill development sessions taught by professional educators, scientists and content experts. Daily activities include both indoor, inquiry-based classroom experiences and outdoor, field experiences.

Berkshire Region: Berkshire Museum, Center for Ecological Technology, MA DCR, Housatonic Valley Association

Boston Region: Boston Children's Museum, Harvard Museum of Natural History, New England Aquarium, Zoo New England

Cape Cod/South Shore Region: Cape Cod Maritime Museum, National Marine Life Center, OceanQuest, South Shore Nature Center

Merrimack River Region: Amoskeag Fishways Learning and Visitors Center, Beaver Brook Association, MA DCR, Nashua River Watershed Association

North Shore Region: Gloucester Maritime Heritage Center, HOBBS, Inc., MAS Endicott and Ipswich Regional Centers, Schooner Adventure

Southeast Region: Buttonwood Park Zoo, Lloyd Center for the Environment, MAS Oak Knoll Wildlife Sanctuary, New Bedford Whaling Museum

Worcester Region: EcoTarium, MAS Wachusett Meadow Sanctuary, MA DCR, Tower Hill Botanic Garden, Worcester Art Museum

Investigate:

- using inquiry-based, hands-on methods in your classroom
- resources at cultural institutions in your area
- life cycles and food chains in local habitats
- using interactive models to explain geology and climate

- ways that chemical and physical factors shape habitats
- how students can use data to describe what they observe
- and much more

Take home a teaching resource kit to ensure your success using inquiry in the classroom. Earn PDPs and/or graduate credit.

Course Fee: \$250 (discounts for more than one teacher per school); additional fees for graduate credit based on institution selected (\$150-\$280 for 4 credits)

Registration Deadline: June 1, 2010 (call for space after deadline).

For a complete brochure or to register visit www.mits.org, e-mail ahoffmaster@mits.org, or call 617-328-1515.

Climate Science and the Oceans

For Teachers Grades 6 to 12

Dates: June 28 - July 1, 2010 - Call-back date Fall 2010

Time: 8:00am to 4:00pm

Credit: 67.5 PDPs or for an additional cost 3 graduate credits from Cambridge College or Framingham State College

Cost: \$200

Course Description: Climate change is the most important science issue of the new century. Join us for this four day summer institute where we'll cover the intricate relationship between climate, the ecosystem and the ocean. With a number of expert guest speakers, we will discuss topics like ocean acidification, rising sea levels and renewable energy sources.

Participants will:

- Consider concepts such as the rising oceans, ocean acidification and climate change
- Draw links between science, math and technology standards using the Massachusetts frameworks
- Examine renewable energy topics and activities to help students take a hands-on approach to challenges that climate change creates
- Hear from expert presenters on climate science, coastal systems and renewable energy
- Leave with lesson plans, activities and colleagues to support them in the coming year

Register by June 7, 2010.

On the Waterfront: Integrating Science Standards Through Classroom and Field Investigations

For Teachers Grades 3 to 8

Dates: August 2 - 7, 2010 Call back date will be in Fall 2010

Time: 8:00am to 4:00pm

Location: The New England Aquarium and sites along Boston Harbor

Credit: 90 PDPs or for an additional cost 4 graduate science credits from Cambridge College

Cost: \$250

Course Description: Join us for an intensive and exciting 6-day summer institute. We'll be offering content background as well as hands-on practice with inquiry-based activities all related to the state curriculum frameworks.

Participants will:

- Investigate the physical and chemical properties of water
- Explore marine biodiversity, habitats, human impacts, and conservation efforts in and around Boston Harbor
- Learn to link science and literacy standards in the Massachusetts frameworks
- Apply inquiry skills and content knowledge through hands-on investigations
- Participate in activities such as: behind-the-scenes look at the Aquarium, exploring tide-pools on the Boston Harbor Islands and/or a visit to a local salt marsh!

Register by June 7, 2010.

Please email trc@neaq.org or call 617-973-6590 for registration and questions.

Summer Pathways

An exciting one-week, residential program that will take place from July 9-16th this summer at Boston University. Summer Pathways, now in its fourth year, targets girls from Boston area high schools who will be entering their junior or senior year in September 2010, and who show promise and/or interest in science, math, or engineering. Tuition for the program is \$575, but scholarships of up to \$500 are available to students with demonstrated financial need.

Over the course of the week, participants

in Summer Pathways will have the opportunity to engage in many hands on science activities and gain first hand knowledge of a wide range of careers in STEM disciplines. They will also have the opportunity to interact with successful women at all levels of science and engineering -- undergraduate students, graduate students, postdoctoral fellows, faculty, and members of industry. The goal of Summer Pathways is to provide participants with mentoring and exposure to careers in STEM. We hope this experience will serve to motivate them not only to pursue higher education, but also majors in STEM fields.

Participants will live in a BU dormitory, and during this week, they will visit laboratories, engage in science exploration activities, listen to career panels, visit local companies, learn about the college admissions process, and go on science-related field trips to various local destinations, such as the Museum of Science, the New England Aquarium, and the MIT Museum.

Information about the program can be found at www.bu.edu/lernet/spathways. Students who would like to participate in the program should complete and submit an online application via the website. Each applicant will be required to obtain two recommendations from past or present teachers. Teacher recommendations also should be submitted via the website. All applications and letters of reference must be received by May 15, 2010.

We are very excited about this opportunity to provide resources and encouragement to promising young women from our local schools, and would appreciate your help in bringing this program to the attention of qualified applicants. If you have any questions, please call me at 617-353-7021 or send email to cab@bu.edu.

p.s. you can download program brochure here: www.bu.edu/lernet/spathways/s_pathways_brochure.pdf

A Weekend of Astronomy Workshops for Teachers

July 31 - Aug. 1, in Boulder (Telescope Included)

IN THE FOOTSTEPS OF GALILEO: A Hands-on Workshop on Astronomy Sat, Jul. 31 and Sun, Aug. 1, 2010 (9 am to 5 pm) Summers-Bausch Observatory, University of Colorado, Boulder Part

of the 122nd Annual Meeting of the Astronomical Society of the Pacific

One unit of Continuing Education Credit available. Space is limited; early reservations are strongly recommended!

In this hands-on workshop for everyone teaching astronomy or space/earth science in grades 3 - 12, participants will explore Galileo's life, work, and legacy, and learn to do a wide range of hands-on, classroom-ready activities. They will each receive a Galileoscope, a new small telescope especially prepared for last year's Galileo anniversary celebrations, that let you make some of the same observations that Galileo did 400 years ago, plus a packet of resource guides and background information on astronomy and astronomy teaching and a memory stick with some wonderful short videos from the Fiske Planetarium. There will be special emphasis on understanding the Moon and its recent exploration, and a segment on preserving the dark night sky against the "pollution" of city lights. Participants will break up into elementary and secondary groups for parts of the workshop to make sure all teachers receive age-appropriate materials for their students.

No background in astronomy will be assumed; both new and veteran teachers should gain new information and effective teaching techniques from the workshop.

Facilitators include:

Brian Kruse (Lead Formal Educator, Astronomical Society of the Pacific)

Andrew Fraknoi (Chair, Astronomy Dept, Foothill College and the 2007 California Professor of the Year)

Douglas Duncan (Director, Fiske Planetarium and Astronomy Professor, University of Colorado)

Dennis Schatz (VP, Pacific Science Center, Seattle; and the 2009 NSTA Faraday Award winner for science communication)

Constance Walker (Coordinator, Globe at Night at the Nat'l Optical Astronomy Observatories)

Cosponsored by the NASA National Lunar Science Institute and the Fiske Planetarium at the University of Colorado

Cost: \$70 for the weekend

Fifteen Colorado teachers who register will have their registration fee reimbursed thanks to NLSI

For more information and to register, please

see the meeting web site: www.astrosociety.org/events/2010mtg/gttp.html

Teaching Bioinformatics in High School Biology Courses

In Boston on Saturday, July 10th. The International Society of Computational Biology (ISCB) is holding its annual meeting in Boston this July. As part of ISCB's High School Outreach program promoting life sciences education for high school teachers, we are pleased to offer a tutorial "Teaching bioinformatics in high school biology courses." This half day tutorial (8:30 AM to 12:30 PM) is followed by a networking lunch (12:30 PM - 1:30 PM).

This tutorial is aimed at high school biology and chemistry teachers who want to use bioinformatics exercises to support their curricula. We will offer strategies for teaching bioinformatics at the high school level, including examples of student's work. We will present concrete examples of "hands-on" exercises for your students that have been designed to insert readily into current high school biology curricula and correlate with the Massachusetts State Biology Standards. Teachers attending this tutorial will leave with access to these classroom-tested exercises, suitable for a variety of student levels

Fullscholarships are available for 25 teachers, so please register early to assure a spot. This tutorial is sponsored with generous support from The Harvard University NIGMS Center for Modular Biology and The Whitehead Institute Partnership for Science Education.

Additional information can be found at www.iscb.org/ismb2010-program/ismb2010-tutorials. For questions, please contact stevan@iscb.org or lewitter@wi.mit.edu

PreK-5 Science Methods Course

The Lawrence, MA campus of Cambridge College will be the site for a weeklong 3 credit graduate seminar in preK-5 science methods from June 21-25 (the week after most schools close for summer vacation). The seminar (ELE-653) runs M-F 8:30AM-3:30PM and is very “hands-on” with activities for the elementary MA science standards. If you are interested in signing up, know anyone who might be, or want more information, please contact the instructor, joel.rubin@go.cambridgecollege.edu. Dr. Rubin is a full time practicing public school science teacher and formerly headed teacher services at the New England Aquarium.

Bridgewater State College Summer 2010 Course Offering: READ 570: Special Topics Reading, Writing, and Science: The Interdisciplinary Classroom

This course will help teachers of all levels understand how to create an interdisciplinary reading, writing, and science classroom. Teachers will learn how reading, writing, and science can be utilized in complimentary ways that support learning goals in all three areas. Teachers who teach only a little or who teach a lot of science are welcome and will benefit. Topics will include instructional approaches for supporting inquiry science, student’s comprehension and composition of nonfiction/expository texts, analysis of the expectations of state-level tests, and the development of lesson plans integrating new knowledge from the course into current or future classroom practice. This course is worth 3 graduate credits. (Tuition and fees are approximately \$950 total.)

Summer Session II

July 7 – August 10, 2010

Tuesdays & Fridays

8:00am-11:45am

instructor:

Nicole Glen, Ph.D.

Assistant Professor

Elementary & Early Childhood Education

Department

nglen@bridgew.edu

Bridgewater State College: 5 Day Science & Math Institute for Teachers Grades K-8

This summer the Bridgewater State College Department of Physics, in conjunction with Pearson Publishing, is offering a 5-day summer institute on the BSC campus June 28-July 2, 2010. The institute will offer graduate-level courses in mathematics and science that will incorporate standards-based content and instructional strategies with educational research and the application of research findings to improve classroom instruction. The courses will develop mathematics and science content through hands-on activities. The department is offering additional courses in July and August. Summer Registration is now open at www.bridgew.edu! For more information, please call the Department of Physics at (508) 531-1386.

WOW – The Wonders of Wetlands Teacher Training Workshop

Dates available: Saturday, May 22, 2010, Friday, June 25, 2010, or Thursday, July 29, 2010. Join us for this fun, hands-on workshop that focuses on wetlands. We will explore the characteristics, the functions and the value of wetlands. Each topic will be illustrated with activities that educators can use with their classes. Each participant will receive a copy of *WOW!: The Wonders of Wetlands*, a nationally acclaimed educator’s guide to wetland education. The WOW educator’s curriculum guide includes over 50 hands-on activities for grades K-12. For more workshop information, including how to register, contact Kim McCoy by email kmccoy@bridgew.edu, by phone (508) 531-2630 or visit the Watershed Access Lab website at www.bridgew.edu/wal.

WGBH Teacher’s Domain

WGBH *Teachers’ Domain* is pleased to invite you to a free one-day *Teaching Biotechnology* workshop on Saturday, June 12th at the University of Rhode Island in Kingston. Workshop participants will explore brand new Biotechnology digital media resources and a new online professional development course focused on Biotechnology,

both produced by WGBH Teachers' Domain. The workshop is designed for middle and high school science teachers who either are already teaching about Biotechnology, or who are interested in developing a new unit/elective about the subject. Sessions will provide participants with opportunities to share best practices in teaching about Biotechnology, as well as to develop new lessons integrating the digital media resources available through WGBH Teachers' Domain.

We will be joined by Larry Bernard from Amgen in Rhode Island, who will speak about some of the newest developments in the Biotechnology field.

Participants will receive a partial scholarship to enroll in the Biotechnology online professional development course, offered for graduate credit later in 2010 through PBS TeacherLine.

Breakfast and lunch will be provided.

Participants are encouraged, but not required, to bring personal laptop computers.

Teaching Biotechnology Workshop:

Date: Saturday, June 12, 2010

Time: 9:00 am – 3:00 pm

Location: The Center for Biotechnology and Life Sciences

URI / Kingston

120 Flagg Road

Kingston, RI 02881

To reserve your spot in this workshop, please respond as soon as possible to Laura Fukushima at laura_matter_fukushima@wgbh.org or call 617-300-3631.

Enrollment is limited, so please sign up soon! You will receive directions to the workshop once your attendance has been confirmed.

Funding for this workshop, the Teaching Biotechnology online course, and the Biotechnology collection on Teachers' Domain, has been generously provided by the Amgen Foundation.

Urban Scholars

Job Description: Urban Scholars provides talented educators with an opportunity to propose and teach their dream class. Teach course(s) Monday thru Thursday between 9:00AM-12:55PM. Propose to teach the same course twice or teach two completely different courses. Propose to teach 6th, 7th, 8th, 9th, 10th, and/or 11th grades. Serve as a mentor to an undergraduate college

student serving as your TA. Work with your TA throughout the seven weeks to provide a cohesive environment for the students. Attend weekly instructor meetings every Thursday 1:00PM-2:00. Serve as a Judge for Field Day; Attend USCAR our Awards ceremony on Friday August 13th; Option to plan and implement a workshop on Friday in subject/area that you are passionate and knowledgeable about.

Qualifications: MUST be able to commit to the entire summer June 28th -August 13th (with the exception of full time job responsibilities) and attend all day orientations on Wednesday, June 16th & Thursday June 17th. Possess a Bachelors degree in a relevant field. Experience working with urban middle and high school students preferred. Demonstrated teaching philosophy and methods that encourage the development of active and independent learning habits. Experience teaching hands-on project based courses. Demonstrated ability to develop and implement curricula. Compensation: Instructors will be paid \$2,340 per course (Courses are 1 hour and 15 minutes. Instructors have a 4 day work week; off on Fridays)

To apply or for more information: urban-scholars@umb.edu fax: 617.287.5818. Send resume and course proposal(s)/syllabus no later than May 14th, 2010. Class Proposal(s)/syllabus need to include the following information: Course title, Main idea topic(s), Procedures, Grade (s) level preferred, Subject of course, Prerequisites of students, Goals, Week by week outline, Evaluation/ Assessment, Instructional aids materials or tools references.

Online Science Courses for Educators: Accepting Summer Registrations

The University of Nebraska-Lincoln offers 8- and 5-week online courses for elementary, middle and high school teachers. Through science content inquiry, integration and application, educators will improve their science content knowledge, learn pedagogy that drives learning experiences, and develop curriculum that applies science content to real-world situations.

Summer Courses Include:

Lab Earth: Changing Systems, May 17 - July

9

Professional Opportunities

Lab Earth: Earth's Geochemical Systems, June 7 - July 9

Lab Earth: Earth's Geophysical Systems, July 12 - August 12

For more information on the courses or the Master's of Applied Science specialization in Science for Educators, visit: onlinegrad.unl.edu/programs/masters/science, e-mail unlextended@unl.edu or call 402-472-5515.

NASA Funding:

NASA ACCEPTING PROPOSALS FOR RESEARCH OPPORTUNITIES IN SPACE & EARTH SCIENCES (ROSES) (Note: There are three education opportunities/sets of deadlines) in this ROSES NRA.)

- Opportunities in Education and Public Outreach for Earth and Space Science. An opportunity to conduct mid-sized education and public outreach projects.
- Full proposals due on June 3, 2010.
- New Investigator Program in Earth Science (for early career scientists and engineers) and Fellowships for Early Career Researchers (for early career scientists and engineers in planetary science).
- Notice of Intent is requested by Aug. 4, 2010
- Full proposals due on Sept. 1, 2010.
- Education or Outreach awards for Principal Investigators, or PIs, of selected research investigations as supplements to their research awards. Two different pathways are offered: \$15K/year education pathway proposals and \$10K/year outreach pathway proposals. The parent research award must have more than 12 months remaining at the time of submission of an education or outreach supplement proposal. For additional details concerning the submission of supplement proposals, please see Supplemental Outreach Awards for ROSES Investigators and Supplemental Education Awards for ROSES Investigators.
- Notice of Intent is requested by Aug. 4, 2010
- Full proposals due on Sept. 1, 2010.

For more information, visit tinyurl.com/y8fpbqh. Questions, comments and suggestions about the SMD E/PO program are welcome and may be directed to Larry Cooper at HQ-SMD-ROSES-EPO@hq.nasa.gov.

Caroline Goode, MA Coordinator NSTA

Science Matters~Building A Presence for Science (MassBaP)

Christa Corrigan McAuliffe Center for Education and Teaching Excellence
Framingham State College
100 State Street
Framingham, MA 01701
508-626-4050
good783@comcast.net
Caroline Goode, Coordinator
DHE Southeast Regional K-16 STEM Pipeline Network
508-454-5426

Learning Science through Field Studies and Technology

Urban Ecology Summer Institute 2010

- Learn urban ecology concepts from lead scientists and master teachers
 - Learn how to use information technologies to support your students in the study of urban ecology field science
 - Conduct field-based scientific studies that you can do in your own schoolyard
 - Earn up to 54 professional development points
 - Collaborate with fellow science teachers
- Stipends available to teachers from high needs school districts (tentatively we are anticipating \$700/week, we are awaiting word on the final funding amount)
- 8 days: July 6 -9, July 12-15
8:30 am to 3:30 pm
Higgins Hall, Boston College
For more information visit www.urbaneco.org or contact Kim Kilcourse
Education Partners Manager
Urban Ecology Institute
kkilcourse@urbaneco.org
617.552.0938

This program is supported in part through a Hewlett Packard Foundation-Teaching with Technology Program (Grant# 189660) and a National Science Foundation Information Technology Experiences for Students and Teachers (ITEST) program (Grant#0525040).

Looking for Cool Uses of Data-Collection Technology?

NSTA/Vernier Winners Have Them

Seven educators win Vernier data-collection technology and funding for professional development and classroom resources

David and Christine Vernier, founders of Vernier Software & Technology, awarded seven educators with the NSTA/Vernier Technology Award at the National Science Teacher Association (NSTA) Conference in Philadelphia, PA on March 19, 2010. These educators were recognized for their planned or current innovative uses of data-collection technology and were chosen by an NSTA-appointed panel of experts.

Each winner will receive \$1,000 in Vernier products, \$1,000 in cash, and up to \$1,000 to reimburse expenses incurred while attending the 2010 NSTA National Convention in Philadelphia, Pennsylvania on March 17-20, 2010. Each educator will be formally recognized during the convention's NSTA Awards Banquet.

Below are brief descriptions of each winning entry. Some projects have already taken place while others will take place in the future.

Category: Elementary

Judy Heitkamp, Prairie Elementary School, Worthington, MN

Judy plans to use Vernier data-collection technology with her 4th grade students to study how humans can affect the quality of the water supply in their community.

Category: Middle School

Nicole Anderson, Berkeley Preparatory School, Tampa, FL

Nicole developed an innovative cross-curricular activity that connects biology, mathematics and engineering using LEGO® NXT® robotics and Vernier sensors.

Cynthia Ollendyke, Peters Township Middle School, McMurray, PA

Cynthia will have her students use Vernier probeware to determine if the area behind her school is environmentally healthy.

Category: High School

Steve Ahn, Abingdon High School, Abingdon, VA

Steve plans to have his students use GPS and sensor data to predict the type of underlying base rock along the Virginia Creeper bike trial.

Stephen Biscotte, Cave Spring High School, Roanoke, VA

Stephen has created a Physicians-In-Training program, in which he uses physiology sensors to incorporate real-world experiences into his anatomy and physiology curriculum.

Deborah Carder, Fruitvale High School, Fruitvale, TX

Deborah will have her students do water-quality testing on the retention ponds located on school property.

Category: College

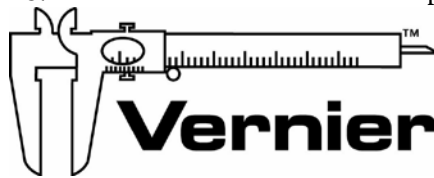
Brian Geislinger, Gadsden State Community College, Gadsden, AL

Brian had his introductory astronomy students use a Light Sensor to measure small variations in light intensity as a "planet" orbits a star in a model solar system he created.

More Info?

For more information on the winners and their projects or to prepare your 2011 entry visit www.vernier.com/nstaawards

If you are interested in speaking with any of these innovative educators, please contact Brooke MacDonald at brooke@kehcomm.com or via phone at 410-975-9638.



(Re)Designing Our Future

By Evan McManamy
High School Senior
Newburyport MA

I read the book *Cradle to Cradle: Remaking the Way We Make Things* by William McDonough and Michael Braungart (2002) for the very first time in eighth grade. The authors imagine a redesigned culture, a culture in which consumer products enrich the earth instead of tarnishing it—a culture in which our civilization lives not opposed to nature but in accordance with it.

Though they are environmentally oriented, McDonough and Braungart renounce the customary slogans of the environmental movement—reduce, reuse and recycle. They explain that nearly all modern recycling is truly “down-cycling”—our unsustainable recycling system reduces the quality of recycled goods such that they will end up in a landfill within three cycles of use. The authors advocate revamping our culture’s product design system to correspond with the processes of nature.

According to McDonough and Braungart, all commodities must be designed with their future life-cycles in mind: if every product can either biodegrade or be easily and safely re-harvested to be used again as a high-quality material, the environmental movement’s slogan will not be to “use less” but to “use thoughtfully.”

These concepts inspired me to think of engineering in a different way: engineering and design could lead our culture’s transition toward sus-

tainability. In fact, as the creators of our culture’s infrastructure and consumer goods, engineers are best equipped to do so.

In a future career I hope to do engineering work related to the concepts from *Cradle to Cradle*. I envision myself designing sustainable products attuned to nature, searching for elegant and simple solutions. I hope to be part of the movement that challenges the course of conventional industry: instead of seeing industry as the monstrous invention of the industrial revolution that uses nature unsustainably, I want to help to transform industry into a responsible system with respect for the environment and equity for its workers. Instead of designing short-sightedly and without reflection, I want to design with wisdom, thoughtfully considering the future role my products and their materials will play. Reading this book was an important event in my scientific education because it illuminated for me an alternative perspective on human use of natural resources.



Watching Apples Dry

By Sidney Chiang
High School Junior
Hopkinton MA

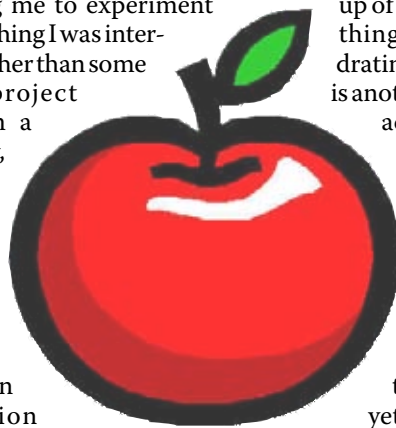
In third-grade science fairs, almost everyone conducts similar science projects; there is the infamous model volcano, for example, or other favorites, like solar system dioramas. For my project, I chose to, essentially, sit around and watch apples dry. My mom went out and bought a food dehydrator, and the young scientist in me tested multiple trials of both machine-dehydrated and natural, sun-dried apples, comparing the two to discover how much of an apple is made up of water. My experiment was not, in and of itself, a particularly interesting or unique project. But for some reason, I was proud of myself for designing my own experiment, and for not making one of those model volcanoes.

In third grade, simply following some “scientific methodologies” and getting the “correct” result seemed a major accomplishment. Yet, another part of science is discovering something that is truly interesting, and that comes as a result of an experiment that is clever and individual. To my third-

grade self, my apple-drying experiment at least addressed some real, if not quite pressing, question: how much of an apple is water? And while not necessarily the “best” science, my science fair project was invaluable in allowing me to experiment with something I was interested in, rather than some random project I found in a book. Now, saying I designed and performed the entire experiment by myself is an exaggeration of my third-grade abilities; my parents were tremendous resources in helping me with my project. But still, the third-grader in me wants to add, isn’t being able to work with others part of science too?

Perhaps the greatest virtue of science fairs for young kids in general is the opportunity to actually perform an experiment.

For young kids, few science experiments are actually done in school, so having the opportunity to practice, even at home, is enormously beneficial for scientific development. Learning that an apple is made up of ~80% water is one thing; actually dehydrating apples yourself is another. Learning that adding vinegar to baking powder will cause a volcanic reaction is one thing; watching a teacher do it in class is another; actually getting to do it yourself is yet another, and a far more enjoyable and educational experience for the child. Young kids are engaged by “explosions” generated in science classes, but individual projects give them the freedom to have fun and be proud of their own, “real,” hands-on science.



Science News

A wonderful article appeared in the March, 2010 *Scientific American*. Below are a few excerpts that should interest you to read it in its entirety

From the March 2010 *Scientific American* magazine
Start Science Sooner

Excellence in science education must begin in kindergarten
(Excerpts of excerpts by the Editors, by Ken Brody)

When researchers interviewed kindergartners from typical classrooms, barely a third of the children showed any knowledge of science, whether from school or other sources.

Science is high on the list of subjects that early-grade teachers feel ill prepared to teach. A 2009 study found that Head Start children in Florida ended their pre-K year with significantly lower readiness scores in science than in any other domain.

Of course, teachers need to make difficult trade-offs in the classroom, where many worthy subjects compete for precious little time. If more science is to be taught in kindergarten, what should be removed to make way for it?

Maybe nothing.

The Purdue approach, the Scientific Literacy Project (www.purduescientificliteracyproject.org), introduces children to the most fundamental idea—that science is about carefully conducted inquiry to learn about the world—and shows them that everyone can do science.

The researchers found that students participating in their project showed significant gains relative to those taking traditional classes.

An emphasis on “inquiry science” has long been advocated by the National Research Council,

Children are natural scientists: not only are they inquisitive and energetic, but they have an instinct for controlled experimentation.

Science NOW!

MAST Annual Conference

October 21-22, 2010

Boxborough Holiday Inn

*Downloadable Registration Form Available at
www.MassScienceTeach.org*

Massachusetts Association of
Science Teachers
Box 771, Worcester MA 01613-0771
Address Service Requested

U.S. POSTAGE
PAID
NON-PROFIT
PERMIT #589
WORCESTER, MA

CALENDAR

Date

Activity

October 21-22, 2010

MAST Fall Conference. For more information see www.MassScienceTeach.org.