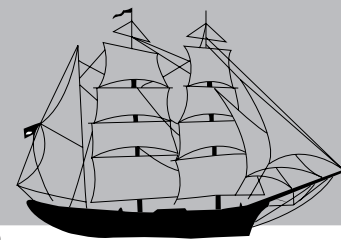


# MASTHEAD

MASSACHUSETTS ASSOCIATION OF SCIENCE TEACHERS

State Chapter of the National Science Teachers Association Vol. 37 No. 1 September 2009



**MAST**

## Annual Conference Preview

# Science: A Voyage of Discovery

October 22-23, 2009

Holiday Inn Boxborough MA

### Letter from the MAST Conference Co-chairs

The Massachusetts Association of Science Teachers and the Massachusetts Educational Leadership Association are pleased to be working in partnership to bring you the largest science conference in the state. We have made some changes this year to make the conference even more practical, valuable, and full of variety.

The 2009 MAST/ MSELA conference will be held on Thursday October 22 and Friday October 23, a week earlier than last year, so be sure to submit your requests for professional days early. The conference will again be held at the Boxborough Holiday Inn, which has a large exhibition hall, many rooms for presentations, and easy access from Route 495.

We are adding several new programs for the 2009 conference. First, we will have a strand focusing on marine science. There will be several workshops and displays offered both days. Additionally, there will be a room set up to meet and greet your MAST county board representatives and another room dedicated to showcase information, resources, and programs from the National Science Teachers Association.

Science is a Voyage of Discovery that engages teachers and students to explore important science ideas and concepts. Teachers realize the importance of understanding science as a way of thinking and find ways to incorporate science into any

subject they teach, whether it is language arts, math, music, art, physical education or social studies.

We hope that this conference will help rejuvenate your teaching and provide you with new ideas for your classes. In addition we hope that you will use your time at the meeting to network with other teachers like yourself, spending time exchanging ideas. If you are a veteran teacher and frequent participant at the state science conference, we hope that you will encourage a budding teacher or two to attend with you and that you will advise him or her how to best use the conference time.

The conference this year begins with Registration and continental breakfast at 7:00 a.m. and workshops begin promptly at 8 a.m. You will save time (and money!) by pre-registering (see Registration Form on the next page). You may register for just Thursday, just Friday, or for a reduced fee you can register for both days. When you register, you may decide which organization (MAST or MSELA) membership to choose, or you may join both organizations for a reduced fee.

On Thursday, the schedule includes five 1-hour sessions with breaks between each for visiting exhibits and a break for lunch. Some of the workshops are scheduled in double blocks, to provide participants with more in-depth training. PDPs will be available at the end of each day.

The Exhibit Hall will be open both days with nearly 100 exhibitors from commercial and non-profit organizations. We hope that you will enjoy visiting the booths, examining

*[continued on page 4]*

**2009 Conference Registration Form on Next Page**  
**MAST Hall of Fame Nomination Form on Page 38**



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# ANNUAL CONFERENCE PREVIEW

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## Conference at a Glance

### *Thursday, October 22*

Registration	7:00 AM	4:00 PM
Continental Breakfast in Exhibit Hall	7:00 AM	8:30 AM
Morning Sessions	8:00 AM	11:45 AM
Exhibits	9:00 AM	4:00 PM
Exhibits Grand Opening/Break	10:15 AM	10:45 AM
Dedicated Exhibit Time	11:45 AM	12:15 PM
Lunch in Courtyard (ticketed)	12:15 PM	1:00 PM
Afternoon Sessions	1:00 PM	3:15 PM
Special Exhibit Time and Door Prizes	3:15 PM	4:00 PM
MAST Annual Meeting	4:00 PM	4:30 PM
Banquet Reception	5:00 PM	6:00 PM
MAST/MSELA Awards Banquet	6:00 PM	9:00 PM

### *Friday, October 23*

#### MAST/MSELA COMBINED SCHEDULE

Registration	7:00 AM	12:00 PM
Continental Breakfast in Exhibit Hall	7:00 AM	8:30 AM
Exhibits	7:30 AM	1:00 PM
Morning Sessions	8:00 AM	11:30 AM
Dedicated Exhibit Time/Break	9:30 AM	10:00 AM
Dedicated Exhibit Time	11:30 AM	12:00 PM
Lunch in Courtyard (ticketed)	12:00 PM	12:45 PM
Afternoon Sessions	1:00 PM	2:30 PM
MAST Merriment	2:30 PM	

## MAST Conference Contacts

Co-Chair	Lynn Gatchell	508-693-0974
Co-Chair (Presenters)	Pat Harcourt	508-457-5221
Registration	Joann Blum	508-886-6802
Hotel	Holiday Inn Boxborough	978-263-8701
Commercial Exhibits	ESANE	508-543-7778
Nonprofit Exhibits	Michele Daigle	508-886-6111
Hospitality	Lou Palanzi-Ricker, M. Richardson	603-882-1997
Membership	Sr. Kathy Livingstone	508-791-4947

*All times, speakers, and presentations subject to change! See MAST website for the latest information.*

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# ANNUAL CONFERENCE PREVIEW

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## MSELA Conference Contacts

Conference Chair	James Perry	508-261-7540
Registration	Wendell Cerne	781-585-3844
Membership	David Pierce	508-748-2000

## MSELA FRIDAY SESSIONS

### **Board Room**

8:00 am To be scheduled

10:00 am To be scheduled

1:00 pm To be scheduled

### **Seminar Room**

8:00 am TIMSS

10:00 am Revisions of the MA Science & Technology/Engineering Framework- Updates

1:00 pm STE Science and Technology/Engineering MCAS

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## Letter

CONTINUED FROM PAGE 1

new science equipment and books, and getting advice from the exhibitors.

At 3:15 on Thursday special door prizes will be awarded in the Exhibit Hall. Don't miss your chance to win something great for your classroom!

Immediately after the prizes, MAST will hold a short annual meeting. We encourage you to attend that meeting to learn about the structure and management of MAST, your state chapter of NSTA. If you think you might be able to donate a few hours helping to plan next year's conference, please drop in to the meeting or speak to any board member during the conference. We need many hands to help out, especially in areas related to technology.

Friday begins with a continental breakfast. The Friday workshop sessions include three 1.5-hour blocks, beginning promptly at 8 a.m.; and again the blocks are separated by exhibit times and snack or lunch breaks. The day ends with MAST merriment, and more prizes.

We hope you will be able to take advantage of these exciting and fun-filled two days of professional development. Don't forget pre-registration forms are due by Oct 1. We look forward to seeing you at the conference!

*Lynn Gatchell and Pat Harcourt, Conference Co-Chairs*

*All times, speakers, and presentations subject to change! See MAST website for the latest information.*

# ANNUAL CONFERENCE PREVIEW

## Thursday Highlights

7:00 am to 4:00 pm

Registration in Exhibit Hall

7:00 am to 8:30 am

Complimentary Continental Breakfast in Exhibit Hall

9:00 am to 4:00 pm

Exhibits Open

10:15 am to 10:45 am

Exhibit Hall Grand Opening  
Break sponsored by School Specialty

11:45 am to 12:15 pm

Dedicated Exhibit Hall Time

12:15 to 1:00 pm

Lunch in the Courtyard (ticketed)

3:15 pm to 4:00 pm

Special Exhibit Hall Time  
Browse Exhibits; Sign up for DOOR PRIZES.

4:00 pm to 4:30 pm

MAST Annual Meeting in Cotillion Room. (No elections this year) All MAST members are encouraged to attend!

4:00 pm to 4:30 pm

MSELA Meeting in Director

5:00 pm

Banquet Reception in Courtyard  
Sponsored by Prentice-Hall

6:00 pm

MAST/MSELA Awards Banquet in Courtyard

## Professional Development Points

*Use Attendance at a Mast Conference Workshop as PDP*

- 1 Collect a MAST PDP form at the end of the day of the conference.
- 2 Calculate the total number of hours that you attended workshops. (You must have at least 2 hours.)
- 3 Combine these PDP's with similar topic PDP's from other providers (school systems, other DOE providers) totaling 10 hours.
- 4 Complete a product and present the "package" to your supervisor.

## \$250 Mini-Grant Offered by ESANE

One mini-grant will be awarded during the Conference. After you visit the Exhibit Hall, go to the ESANE table and complete a form to enter in the random drawing. If you win, you can spend the mini-grant on anything you want from vendors who are in attendance at the MAST Conference.

# ANNUAL CONFERENCE PREVIEW

Interest Area Key: (L) Life Science, (E) Earth, (P) Physical, (Prof Dev) Prof. Development, (Tech) Technology.  
Target Group Key: (El) Elementary, (M) Middle, (HS) High School, (Adult Ed) Adult Education, (G) General

## MAST SESSION 1

8:00 am to 9:00 am

### 1. Science and Garfunkel: Helping Middle schoolers master objectives through music

Presenter: Katie Lewkowicz Excel Academy  
(Room) L El, M

After doing the “Respiratory pokey” and singing along to “I am a mineral” participants will write science songs that not only help students memorize but also ignite their creative energy.

### 2. The Particulate Nature of Matter: Chemical Interactions for Middle School (part 1 of double session)

Presenter: Kathi Brown Delta Education  
(Room) P M

Participants will engage in hands-on /mind-on activities that develop an understanding of matter as particles. Find out how this foundation can and will be use to build other essential chemistry concepts such as kinetic energy. Handouts, materials and books for the first 25 participants.

### 3. FDE/NSA Science and our food supply (part 1 of double session)

Presenter: Janie Chuckran Bridgewater-Raynham School District  
Co-Presenter: Dr. Dave Chuckran SEMASS  
(Room) L M, H

Session will include discussion and demonstrations on safe food practices, such as critical temperatures to kill pathogens, and contamination simulations. Participants will receive a take-home FDA kit including a CD, video, lab materials, and binder.

### 4. Robotics (part 1 of double session)

Presenter: Gary Garber Boston University Academy  
(Room) P M, H

Participants will build a functioning remote control robot from a VEX robotics kit. Participants will be introduced to the tools they need to start a robotics program at their school and have their students enter robotics competitions.

### 5. Linking Science to the Literacy Block

Presenter: Judith Cournoyer MAST board member  
Co-Presenter: Evelyn Sinni  
(Room) Literacy El

This workshop will provide participants with ideas on how to incorporate science into their existing literacy program. Participants are encouraged to bring a reading manual or list of stories they use in their classroom.

### 6. IPY STEM Polar Connections: An International Polar Year Curriculum Development Project (part 1 of double session)

Presenter: Rob Snyder UMass Amherst  
Co-Presenter: Mort Sternheim UMass Amherst  
(Room) L, E, P, PD El, M, H, I

IPY STEM Polar Connections is an NSF funded teacher professional development project focusing on the latest developments in polar research. This workshop will present a variety of activities and provide resources for classroom use.

### 7. A Closer Look: Ocean Science and Literacy

Presenter: Jayshree Oberoi MAST board/New England Aquarium  
(Room) Marine, Literacy El, M, I, G

Learn to connect science skills such as inquiry, observations and investigations with literacy skills such as reading and writing through the use of biofacts and magnification tools for observations.

### 8. Force and Motion Labs: Small in size yet designed to maximize!

Presenter: Steve Feilman NY State Science Teacher Assoc.  
Co-Presenter: Fred Pidgeon NY State Science Teacher Assoc.  
(Room) P M

Want to really have your students grasp Newton’s Laws of Motion? You will be able to try a set of station labs that require very few materials yet they yield the type of Mastery Learning we all look for in our hands on activities!

### 9. NEED PROJECT – Forms of Energy and Energy Transformations

Presenter: Deborah Fitton Cape Light Compact/NEED  
(Room) P El, M, H

National Energy Education Development Energy activities

All times, speakers, and presentations subject to change! See MAST website for the latest information.

# ANNUAL CONFERENCE PREVIEW

for grades K–5. Use NEED’s *Science of Energy Kit* to explore the forms of energy. We will focus on heat, light, motors, batteries, and electromagnetism. NEED materials are correlated to the Massachusetts state standards. Come and find out about the many resources available from NEED. Activities, curriculum materials, readings, projects, and games will help students learn about the science of energy.

## 10. Exploring Multimedia Classroom Resources with Harvard Life Sciences Outreach

Presenter: Susan Johnson Harvard Life Sciences/ HHMI Outreach Program

Co-Presenter: Tara Bennett, Program Manager  
**(Room)** L H

Harvard University’s Life Sciences – HHMI Outreach Program website is a rich educational resource for high school biology teachers. Explore online lessons, teacher-authored animations and streaming faculty lectures on a variety of topics.

## 11. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors  
**(Room)**

Meet your County Directors and Board Members.

## 12. NSTA – All Day

Presenter: Marilyn Richardson NSTA District One Director  
**(Room)**

Find out what NSTA can do for you. Learn about grants, professional development, resources, and programs.

## 13. Science - Voyage of Discovery Stations – All Day

Presenters: MAST members

**(Room)** E, L, P, T El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

## MAST SESSION 2

9:15 am to 10:15 am

### 14. Project Based Inquiry: Hands on STEM activities for middle school

Presenter: Connie Anick Its About Time Herff Jones  
Educational Division

Co-Presenter: Martha Katechis Its About Time, Herff Jones  
Educational Division

**(Room)** E, L M

Students investigate science content and learn science practices as they address project challenges and answer questions about the world around them.

### 15. The Particulate Nature of Matter: Chemical Interactions for Middle Schools (Part 2 of double session)

Presenter: Kathi Brown Delta Education

**(Room)** P M

Participants will engage in hands-on /mind-on activities that develop an understanding of matter as particles. Find out how this foundation can and will be use to build other essential chemistry concepts such as kinetic energy. Handouts, materials and books for the first 25 participants.

### 16. FDE/NSA Science and our food supply (Part 2 of double session)

Presenter: Janie Chuckran Bridgewater-Raynham School District

Co-Presenter: Dr. Dave Chuckran SEMASS

**(Room)** L M, H

Session will include discussion and demonstrations on safe food practices, such as critical temperatures to kill pathogens, and contamination simulations. Participants will receive a take-home FDA kit including a CD, video, lab materials, and binder.

### 17. Robotics (Part 2 of double session)

Presenter: Gary Garber Boston University Academy

**(Room)** P M, H

Participants will build a functioning remote control robot from a VEX robotics kit. Participants will be introduced to the tools they need to start a robotics program at their school and have their students enter robotics competitions.

# ANNUAL CONFERENCE PREVIEW

## 18. Standards Assessed Middle School

Presenter: Stacy Militello Oak Middle School, Shrewsbury  
Co-Presenter: Pam Poitras  
**(Room)** Assessment M

Imagine teaching science and not giving grades of A–B–C; assignments are not marked with percentages; instead every assessment is based on a science learning standard. At Oak Middle School in Shrewsbury students' reporting tools show student understanding of learning goals each term. Find out about teaching science in a purely standards based school.

## 19. IPY STEM Polar Connections: An International Polar Year Curriculum Development Project (part 2 of double session)

Presenter: Rob Snyder UMass Amherst  
Co-Presenter: Mort Sternheim UMass Amherst  
**(Room)** L, E, P, PD El, M, H, I

IPY STEM Polar Connections is an NSF funded teacher professional development project focusing on the latest developments in polar research. This workshop will present a variety of activities and provide resources for classroom use.

## 20. Earth as a System is Essential: Seasons and the Seas

Presenter: Joyce Tugel Maine Math & Science Alliance  
Co-Presenter: Ginger Winslow  
**(Room)** Marine, L, E, P M

This session will share lessons that support student thinking in Earth, life and physical science. See how this NOAA funded project has helped teachers develop a system approach to teaching.

## 21. Habitat Net Project for Teachers

Presented: Dan Bisaccio Brown University  
**(Room)** L, E, T M, H, Ad, I

The goal of Habitat Net is to enable teachers and students to establish permanent biodiversity monitoring projects around the globe and to communicate about investigations, findings, and questions regarding biodiversity issues and management.

## 22. Exploring Multimedia Classroom Resources with Harvard Life Sciences Outreach

Presenter: Susan Johnson Harvard Life Sciences/ HHMI Outreach Program  
Co-Presenter: Tara Bennett, Program Manager  
**(Room)** L H

Harvard University's Life Sciences – HHMI Outreach Program website is a rich educational resource for high school biology teachers. Explore online lessons, teacher-authored animations and streaming faculty lectures on a variety of topics.

## 23. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors  
**(Room)**

Meet your County Directors and Board Members.

## 24. NSTA – All Day

Presenter: Marilyn Richardson NSTA District One Director  
**(Room)**

Find out what NSTA can do for you. Learn about grants, professional development, resources, and programs.

## 25. Science – Voyage of Discovery Stations – All Day

Presenters: MAST members  
**(Room)** E, L, P, T El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

10:15 – 10:45 am

### Exhibit Hall Grand Opening

Browse the many exhibits and enjoy a mid-morning coffee break in the Exhibit Hall. Sponsored by School Specialty.

## MAST SESSION 3

10:45 – 11:45 am

## 26. National Library of Medicine Resources for Science Teachers

Presenter: Michelle Eberle National Library of Medicine/ UMass  
**(Room)** L El, M, H, Ad, I, G

The National Library of Medicine provides free online resources for biology, genetics, careers and health. Come for a guided tour of NLM resources including profiles in science, genetic home reference, medllzeplus, chemioplus, toxtown, toxmap and pubmed.

*All times, speakers, and presentations subject to change! See MAST website for the latest information.*

# ANNUAL CONFERENCE PREVIEW

## 27. When you do hands-on science – how do you know they are getting it?

Presenter: Steve Murray      Delta Education  
(Room)      Assessment & Inquiry El

We will show how the new FOSS benchmark assessments provide summative information and achievement data that can be used for grading and accountability, and to improve students' readiness for state wide testing. Benchmark assessments also provide self assessment techniques for the students.

## 28. The Chemical Formula

Presenter: Deborah Carlisle      Lab Aids – Natural Chemistry  
(Room)      P      H

The chemical formula is elusive to many students, which leads to misconceptions. This workshop will use concrete activities, with molecular models, that will build a solid understanding of the chemical formula. Specifically these activities will show students what the subscript numbers represent, and how they are related to molecular structure. We will also connect the chemical formula to balanced equations.

## 29. Prentice Hall New Books

Presenter: Prentice Hall representative  
(Room)      L, E, P      El, M, H

Find out about new publications from this respected publisher of science education materials.

## 30. Science Enrichment Programs that promote Inquiry

Presenter: Mary Hatton      Endicott College  
Co-Presenter: Joan Sullivan      Family Youth and Science  
(Room)      L, P, PD El, I

Learn how we've developed successful informal science learning experiences aligned with frameworks (after school enrichment family math/science nights). Our programs encourage children to explore, make their own discoveries and solve problems.

## 31. Engaging ESOL Students in Environmental Science

Presenter: Joan Muller      Waquoit Bay Research Reserve  
(Room)      E, PD      M, H, Ad, I

This session will focus on strategies for engaging English Second Language Learners in science learning by connecting them with local environmental organizations.

## 32. Climate Change and the Oceans

Presenter: Nicole Scola      New England Aquarium  
(Room)      Marine, L E, P      M, H, Ad, I, G

The oceans have a central role in protecting the earth. Ocean acidification, rising sea levels, and melting ice caps are endangering our planet. Explore ways to teach the science of climate change and the challenges that the oceans face.

## 33. Marble Launcher

Presenter: Fred Pidgeon      NY State Science Teachers  
Association  
(Room)      P      M, H

Attendees will use the marble launcher to determine projectile motion. Come and explore. Add the excitement of building to your class.

## 34. NEED PROJECT – Saving Energy at Home and School

Presenter: Deborah Fitton      Cape Light Compact/NEED  
(Room)      P      El, M, H

National Energy Education Development Energy activities for grades K–5 .Learn about energy management- easy ways for you and your students to save energy (and money) in the classroom and at home. NEED materials are correlated to the Massachusetts state standards. Come and find out about the many resources available form NEED. Activities, curriculum materials, readings, projects, and games will help students learn about the science of energy.

## 35. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors  
(Room)

Meet your County Directors and Board Members.

## 36. NSTA – All Day

Presenter: Marilyn Richardson      NSTA District One Director  
(Room)

Find out what NSTA can do for you. Learn about grants, professional development, resources, and programs.

## 37. Science – Voyage of Discovery Stations – All Day

Presenters: MAST members  
(Room)      E, L, P, T      El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

# ANNUAL CONFERENCE PREVIEW

11:45 – 12:15 pm

**Dedicated Exhibit Hall Time**

12:15 – 1:00 pm

**Luncheon in Courtyard (ticketed)**

## MAST SESSION 4

1:00 – 2:00 pm

### 38. Foldable Fun (Part 1 of double session)

Presenter: Ellen Lantz Herberg Middle School

Co-Presenter: Brenda Burbank

Herberg Middle School

**(Room)** E, L, P El, M, H, Ad, I

Instructions for making foldables that can be adapted and used with any curriculum. Used for daily work, note-taking, student-directed projects, science labs, journals observations, graphs, tables, forms of alternative assessments, and MORE! Will show you how that can be used in other subject areas.

### 39. Music, Humor and Atomic Structure

Presenter: Warren Phillips Plymouth Community

Intermediate School

**(Room)** P El, M, H, G

Using brain based strategies to teach atomic structure. We will use music, humor, manipulative, movement, visualization and much more to drive home concepts of atomic structure.

### 40. One in One Million

Presenter: Deborah Carlisle Lab Aids – Natural Chemistry

**(Room)** E, L, P M, H

We will explore measuring dilute concentrations with an RGB spectrophotometer. We will gather data and graph our results with specially designed graph paper. This lab is designed to show students what one part per million actually is, and why small amounts actually matter. These applications are important in environmental applications as well as everyday life.

### 41. MCAS Review Can Be Fun!

Presenter: Christina Bash Salem State College

Co-Presenter: Teegan von Burn

**(Room)** L, E, P, MCAS review M, H

In preparation for MCAS, help students reactivate and review concepts based on State Frameworks by using a variety of learning styles and passport type booklet, students will visit sites in an interactive “science fair” type atmosphere. This could be a one day extravaganza or presented over a series of classroom periods.

### 42. CITYSTEM: Community Involvement – Teachers, Youth in STEM Education

Presenter: Lanie Higgins NSTA Goldin Foundation Award

**(Room)** E, L, P El, M

Learn about the development of a successful after school/summer science enrichment program. Discussion will include the mission, procedure, staffing, activities and resources. A step-by-step guide will be provided.

### 43. Teaching MS Chemistry Concepts for HS Biology Concepts (Part 1 of double session)

Presenter: Kathy Vandiver MIT Edgerton Center

Co-Presenters: Amanda Gruhl, Amy Fitzgerald, Jessica Garrett

**(Room)** E, L, P M, H

Two key MS chemistry concepts (chemical reactions part one and photosynthesis part 2) will be taught using examples and simple LEGO bricks to visualize the atoms in the processes. Complete classroom sets of materials will be raffled off to 3 workshop attendees in each workshop.

### 44. Ocean currents and circulation

Presenter: Michael Romano Acton-Boxboro Regional HS

**(Room)** Marine, L, E, P M, H

Together we will explore wind-driven ocean currents and deep-ocean circulation through hands-on activities from the Maury Project. Participants will leave with standards-based labs and activities for use in their classrooms.

### 45. Stem Cells and Bioethics: Bringing the cutting edge of science to your classroom

Presenter: Maria Borowski UMass Medical School/ Center for Stem Cell Biology

Co-presenter: Kim Sterrel

**(Room)** L M, H

This presentation by the Center for Stem Cell Biology at UMass will discuss some of the hot topics in research and how you can help your students become knowledgeable science consumers.

*All times, speakers, and presentations subject to change! See MAST website for the latest information.*

# ANNUAL CONFERENCE PREVIEW

## 46. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors  
**(Room)**

Meet your County Directors and Board Members.

## 47. NSTA – All Day

Presenter: Marilyn Richardson NSTA District One Director  
**(Room)**

Find out what NSTA can do for you. Learn about grants, professional development, resources, and programs.

## 48. Science – Voyage of Discovery Stations – All Day

Presenters: MAST members  
**(Room)** E, L, P, T El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

## MAST SESSION 5

2:15 – 3:15 pm

## 49. Foldable Fun (Part 2 of double session)

Presenter: Ellen Lantz Herberg Middle School  
Co-Presenter: Brenda Burbank Herberg Middle School  
**(Room)** E, L, P El, M, H, Ad, I

Instructions for making foldables that can be adapted and used with any curriculum. Used for daily work, note-taking, student-directed projects, science labs, journals observations, graphs, tables, forms of alternative assessments, and MORE! Will show you how that can be used in other subject areas.

## 50. The Science of Readers Theater

Presenter: Melissa Stewart Author of science books for children  
**(Room)** E, L, P, PD El, M, Ad, I

Build your students’ fluency and teach science concepts by adapting science-themed picture books into fun Readers Theater scripts for your class to practice and perform.

## 51. Helping students “Visualize” polar dynamics

Presenter: Carol Mutchler  
Wilmington HS  
**(Room)** E El, M, H, Ad, I

This workshop is designed to give teachers some simple activities to help students better understand the dynamics of the polar regions. This is suitable for all levels. Activities aimed at helping students “see” what is going on.

## 52. Sketchbook Naturalists

Presenter: Wendy Holzer Harvard Museum of Natural History  
**(Room)** L El, M

Study the adaptations that animals use to survive through careful observations and sketches of museum specimens. Learn how to try sketching in your classroom. No prior drawing experience required.

## 53. The next steps to improving STEM education in Massachusetts

Presenter: Margaret Riley President, MA Academy of Sciences  
**(Room)** PD El, M, H, Ad, I

The Massachusetts Academy of Science (MAS) sponsored a forum on science technology, engineering and mathematics (STEM) education to identify a set of priorities in STEM education reform in the commonwealth. The focus of this presentation is a description of the recommendations and meeting report, which is available on line.

## 54. Teaching MS Chemistry Concepts for HS Biology Concepts (Part 2 of double session)

Presenter: Kathy Vandiver MIT Edgerton Center  
Co-Presenters: Amanda Gruhl, Amy Fitzgerald, Jessica Garrett  
**(Room)** E, L, P M, H

Two key MS chemistry concepts (chemical reactions part one and photosynthesis part 2) will be taught using examples and simple LEGO bricks to visualize the atoms in the processes. Complete classroom sets of materials will be raffled off to 3 workshop attendees in each workshop.

## 55. Modeling of the Seafloor: A 3-D Model

Presenter: Tom Vaughn MME  
**(Room)** Marine, E

Student understanding of seafloor features can be enhanced by the construction of a 3-D model of the ocean floor and by the viewing of a free streaming video available to teachers and students on the Internet

## 56. Three Steps to Sustaining Student Learning in Science

Presenter: William Rigney, MA State Science and Engineering Fair  
Co-Presenter Cora Beth Abel, MSSEF  
**(Room)** PD M, H

Learn about the three steps, and experience a sample activity from the graduate level course, “Teaching Science through the Inquiry Process” (TSIP). Participants explore a hands-on TSIP activity, gain an overview of the curriculum, and review data and plans for statewide scale-up.

*All times, speakers, and presentations subject to change! See MAST website for the latest information.*

# ANNUAL CONFERENCE PREVIEW

## 57. NEED PROJECT – Exploring Wind Energy

Presenter: Deborah Fitton Cape Light Compact/NEED  
**(Room)** P El, M, H

National Energy Education Development Energy activities for grades K–12. Learn about wind as a renewable energy resource. Using classroom-sized wind turbines, design efficient turbine blades, perform tests using variables, and experience the wind generating power and doing work. NEED materials are correlated to the Massachusetts state standards. Find out about the many resources available from NEED. Activities, curriculum materials, readings, projects, and games will help students learn about the science of energy.

## 58. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors  
**(Room)**

Meet your County Directors and Board Members.

## 59. NSTA – All Day

Presenter: Marilyn Richardson NSTA District One Director  
**(Room)**

Find out what NSTA can do for you. Learn about grants, professional development, resources, and programs.

## 60. Science – Voyage of Discovery Stations – All Day

Presenters: MAST members  
**(Room)** E, L, P, T El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

**Exhibits**  
**Prizes**  
**Food**

*There will be a drawing for great prizes*

*Thursday 3:15 to 4:00 PM*

**Special Exhibit Hall Time**

# ANNUAL CONFERENCE PREVIEW

## Later Events

3:15 – 4:00 pm

Special Exhibit Hall Time

Browse Exhibits. Sign up for DOOR PRIZES.

4:00 – 4:30 pm

MSELA Meeting in Directors Room

4:00 – 4:30 pm

MAST Annual Meeting in Cotillion Room

5:00 pm

Banquet Reception in Courtyard (ticketed)

Sponsored by Prentice-Hall

## MAST/MSELA Awards Banquet

Courtyard 6:00 pm

Massachusetts Finalists for Presidential Awards

Dawn Sather Outstanding New Science Teacher Award  
Massachusetts State and County Science Educator Awards  
Russell Stanhope Distinguished Friend of Science Award  
Outstanding Biology Teacher Award

2009 Outstanding Principal's Awards  
2009 Outstanding Science Educator's Awards

***This is a ticketed event***

*All times, speakers, and presentations subject to change! See MAST website for the latest information.*

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# ANNUAL CONFERENCE PREVIEW

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## *MSELA Leadership Sessions*

### **MSELA SESSION 1**

Friday 8:00 – 9:30 am

#### **BOARD Room**

To be scheduled

#### **SEMINAR Room**

##### **TIMSS**

Presenter: Katie Bowler      Mass Dept of Elementary and  
Secondary Education  
Co-Presenter: Sal Beatini

**Katie Bowler** is the Administrator for Science and Technology/Engineering Test Development at the Department of Elementary and Secondary Education (formerly the DOE). She has been at the Department since 2001. Before working in the Assessment Unit, Katie worked in the Office for Math, Science and Tech/Eng where she managed various grant programs and curriculum framework revisions. **Sal Beatini** has worked at the Department of Elementary and Secondary Education since 2004. His main responsibilities are the development of the Biology and Chemistry MCAS tests, however he works on all of the science and tech/eng MCAS tests.

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# ANNUAL CONFERENCE PREVIEW

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## ***MSELA Leadership Sessions***

### **MSELA SESSION 2**

Friday 10:00 – 11:30 am

**BOARD Room**

To be scheduled

**SEMINAR Room**

#### **Revisions of the MA Science & Technology/Engineering Framework- Updates**

Presenter: Joyce Bowen      MA Department of Elementary and Secondary Education  
Co-Presenter: Jacob Foster

The state's Science & Technology/Engineering Framework will undergo a full revision (PreK-12) during the '08-'09 school year. The Department requests input from teachers across the state, to inform the updating of content topics, skills, formatting and other changes. Please join us to discuss and share possible revisions to the Framework.

**Joyce Bowen** and **Jake Foster** are with the Office for Mathematics, Science, and Technology/Engineering (MSTE). Their office is responsible for writing and updating curriculum frameworks in mathematics, science, and technology/engineering. They manage related initiatives in curriculum and instruction, such as professional development, content institutes, mathematics and science partnerships, and advisory councils. In addition, the office is responsible for registering professional development providers.

12:15 – 1:15 pm

**Lunch in Courtyard (ticketed)**

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# ANNUAL CONFERENCE PREVIEW

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## ***MSELA Leadership Sessions***

### **MSELA SESSION 3**

Friday 1:00 – 2:30 pm

#### **BOARD Room**

To be scheduled

#### **SEMINAR Room**

##### **STE Science and Technology/Engineering MCAS**

Presenter: Katie Bowler      Mass Dept of Elementary and  
Secondary Education  
Co-Presenter: Sal Beatini

**Katie Bowler** is the Administrator for Science and Technology/Engineering Test Development at the Department of Elementary and Secondary Education (formerly the DOE). She has been at the Department since 2001. Before working in the Assessment Unit, Katie worked in the Office for Math, Science and Tech/Eng where she managed various grant programs and curriculum framework revisions. **Sal Beatini** has worked at the Department of Elementary and Secondary Education since 2004. His main responsibilities are the development of the Biology and Chemistry MCAS tests, however he works on all of the science and tech/eng MCAS tests.

# ANNUAL CONFERENCE PREVIEW

Interest Area Key: (L) Life Science, (E) Earth, (P) Physical, (Prof Dev) Prof. Development, (Tech) Technology.  
Target Group Key: (El) Elementary, (M) Middle, (HS) High School, (Adult Ed) Adult Education, (G) General

## MAST Friday Highlights

**7:00 – 12:00 noon**

Registration in Exhibit Hall

**7:00 – 8:30 am**

Complimentary Continental Breakfast in Exhibit Hall

**9:30 – 10:00 am**

Dedicated Exhibit Hall Time  
Mid-morning coffee break

**11:30 – 12:00 pm**

Dedicated Exhibit Hall Time

**12:00 – 12:45 pm**

Lunch in Courtyard (ticketed)

**2:30 pm**

MAST Merriment in Exhibit Hall  
Refreshments and Door Prizes!

## MAST SESSION 1

**8:00 – 9:30 am**

### 61. Visual and Hands-on learning

Presenter: Michael Berkowitz K8 Resources  
**(Room)** G

Would you like to use more high-quality visuals, hands-on activities and learning kits? Learn how to create your own.

### 62. Energize your students with inquiry-based water and energy investigations

Presenter: Sandra Ryack-Bell Museum Institutes for Teaching Science

Co-Presenters: Amy Hoffmaster, Jane Heinze-Fry  
**(Room)** E, L, P El, M

Participate in inquiry based, minds on, hands on, water and energy activities developed by K-8 teachers during MITS summer institutes involving 45 museums, aquaria and science education centers. MITS offers a unique graduate level model of professional development for teachers.

### 63. Make Plant and animal cells models with fun and edible materials

Presenter: Mary Chmielecki Qualters Middle School, Marshfield

Co-presenter: Lauren Penta  
**(Room)** L M

We intend to have participants make and evaluate two different cell models: Cell cakes (with frosting), Cell jewelry with shrinky-dink paper and different jewelry attachments.

### 64. Worm Composting for the classroom

Presenter: Ann McGovern MA Department of Environmental Protection

**(Room)** L, El E, M, H, G

Set up a classroom worm bin or an outdoor compost bin to teach Life Science Learning Standard 11, "Energy and Living Things." Bring a 14-gallon or larger plastic tote if you wish to make your own worm bin; worms provided! Great tie-in with school gardening projects. Learn how to obtain outdoor compost bins through DEP's Green Team program.

### 65. 3D Underwater World

Presenter: Ed Jameson Christa McAuliffe Center, Framingham St. College

**(Room)** Marine, L El, M, H, Ad, I

Experience a dramatic guided tour of coral reef life in 3 dimensions! Learn how to make and show 3D images and what it takes to work under water.

### 66. Science Notebooks provides sense making to hands-on science

Presenter: Steve Murray Delta Education  
**(Room)** P El, M, H

In this hands-on workshop participants will use materials

*All times, speakers, and presentations subject to change! See MAST website for the latest information.*

# ANNUAL CONFERENCE PREVIEW

form the FOSS program to show how notebooks help student with the sense making part of Hands-on Science. Participants will use notebooks to construct concepts and build explanations

## 67. Bring your science classroom into the 21<sup>st</sup> century

Presenter: Lara Sharp PASCO Scientific  
**(Room)** L, E, P El, M, H

Experience 21<sup>st</sup> century hands on, minds on science education through technology. You will interact with PASCO's new color touch screen SPARK science learning system. Find out how PASCO provides simple, convenient, reliable, and complete solutions for science education.

## 68. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors  
**(Room)**

Meet your County Directors and Board Members.

## 69. NSTA – All Day

Presenter: Marilyn Richardson NSTA District One Director  
**(Room)**

Find out what NSTA can do for you. Learn about grants, professional development, resources, and programs.

## 70. Science – Voyage of Discovery Stations – All Day

Presenters: MAST members  
**(Room)** E, L, P, T El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

9:30 – 10:00 pm

### ***Dedicated Exhibit Hall Time***

**Browse the exhibits and enjoy a coffee break.**

## MAST SESSION 2

10:00 – 11:30 am

## 71. Using the design process in Anatomy and Physiology

Presenter: Catherine McCahill Hopkinton HS  
**(Room)** L H

The principal of analytical design can be used to help students build their own understanding. A lesson building models will demonstrate how students can analyze data to determine the characteristics of epithelial tissue.

## 72. Electrochemical Cells and the Battery

Presenter: Deborah Carlisle Lab Aids  
**(Room)** P M, H

We will explore the relationship between electrons, electricity, and chemistry. How do chemicals store energy? Each group will make a lemon battery and then apply those concepts to a real galvanic cell. The voltage will be measured using a voltmeter and this will allow for a deeper investigation of how a battery actually works. Each group will experiment with the various parts of the cell. We will observe and discuss how batteries get energy from chemicals. Related chemical reactions and how rechargeable batteries work will also be topics of discussion.

## 73. Science Notebooks the key to investigative questions

Presenter: Mary Rizzuto Needham Science Center  
Co-Presenter Kelly Corbett  
**(Room)** P El

Experience the inquiry model, experiment with electricity, and discover how the use of science notebooks can inspire independent student investigations in an elementary classroom.

## 74. Force and Motion Labs: Small in size yet designed to maximize!

Presenter: Steve Feilman NY State Science Teachers Association  
**(Room)** P M  
Co-Presenter Fred Pidgeon NY State Science Teachers Association

Want to really have your students grasp Newton's Laws of Motion? You will be able to try a set of station labs that require very few materials yet they yield the type of Mastery Learning we all look for in our hands on activities!

# ANNUAL CONFERENCE PREVIEW

## 75. Massachusetts Marine Educators

Presenter: MME Member

**(Room)** Marine, E

This session will be part of the marine strand with a presentation TBA.

## 76. Bringing vision into the classroom

Presenter: Dr. Ishara Mills-Henry MIT, MABT

**(Room)** L M, H

This workshop, part of an NIH outreach program, will focus on human eye anatomy with emphasis on color vision. A part of the workshop will include a cow eye dissection and a discussion about the molecular basis of human eye diseases. Worksheets and laboratory activities on how to include these topics in the classroom will be available.

## 77. Bring your science classroom into the 21<sup>st</sup> century

Presenter: Lara Sharp PASCO Scientific

**(Room)** L, E, P El, M, H

Experience 21<sup>st</sup> century hands on, minds on science education through technology. You will interact with PASCO's new color touch screen SPARK science learning system. Find out how PASCO provides simple, convenient, reliable, and complete solutions for science education.

## 78. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors

**(Room)**

Meet your County Directors and Board Members.

## 79. NSTA – All Day

Presenter: Marilyn Richardson NSTA District One Director

**(Room)**

Find out what NSTA can do for you. Learn about grants, professional development, resources, and programs.

## 80. Science – Voyage of Discovery Stations – All Day

Presenters: MAST members

**(Room)** E, L, P, T El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

11:30 – 12:00 pm

### Exhibit Hall Time

Last chance to visit exhibits

12:00 – 12:45 pm

Lunch in Courtyard (ticketed)

## MAST SESSION 3

1:00 – 2:30 pm

## 81. Squid Dissection

Presenter: Laura Katz Needham Science Center

Co-Presenter Judy Campbell

**(Room)** Marine, L El

Participants will dissect this fascinating, marine invertebrate, an activity perfect for your 4-6<sup>th</sup> grade students. Presenters will review dissection tools, techniques, squid classification and adaptations.

## 82. Science and Ecology: Live & Unplugged! A Cumulative and Sequential Environmental Education Program Collaboration

Presenter: Drew Dumsch Ferry Beach Ecology School

**(Room)** L, E El, M, I

Learn about “SELU”, a place-based learning collaborative addressing environmental literacy. Workshop time will include hands-on activities and address how to include and fund environmental literacy programs in your school-year curriculum.

## 83. Energy Car and Timer

Presenter: Fred Pidgeon NY State Science Teachers Association

**(Room)** P M, H

All attendees will use the timer and energy car to discover velocity, acceleration and momentum collisions. (Max of 20).

All times, speakers, and presentations subject to change! See MAST website for the latest information.

# ANNUAL CONFERENCE PREVIEW

## 84. Mineral Formation A Food Analogy

Presenter: Mark Greenman NSF Einstein Fellow/ Marblehead HS  
**(Room)** E El, M

Your students work as mineralogist creating in their laboratory the conditions for the formation of common minerals. In this hands-on activity, students will use flour, cocoa, baking soda, sugar, salt, and brown sugar as ions to form Quartz, Feldspar, Olivine, Hornblende, Corundum, and Hematite.

## 85. Demystifying science education in the Department of Youth Services

Presenter: Kathy Rho Commonwealth Corporation  
**(Room)** L, P, PD M, H, G

The Massachusetts Dept of Youth Services (DYS) developed a science instructional guide aligned with the frameworks for biology, chemistry and physics, as well as with the National Science standards. Come learn how you can use this tool guide in you classroom

## 86. Science and Literacy

Presenter: Kathi Brown Delta Education  
**(Room)** E, L, P El, M

Learn techniques and ideas to utilize in your classroom to help students develop science concepts as well as increase their writing, recording and reading skills. Great for Elementary through Middle school level. Handouts, some materials and readings will be provided to the first 20 participants.

## 87. MAST Board and County Directors – All Day

Presenter: County representatives to MAST Board of Directors  
**(Room)**

Meet your County Directors and Board Members.

## 88. NSTA – All Day

Presenter: Marilyn Richardson NSTA District One Director  
**(Room)**

Find out what NSTA can do for you. Come and learn about grants, professional development, resources, and programs.

## 89. Science – Voyage of Discovery Stations – All Day

Presenters: MAST members  
**(Room)** E, L, P, T El, M, H, Ad, I

Try out a variety of “Gee whiz!” experiments you can use in your classroom.

2:30 pm

**MAST Merriment - Refreshments  
and Door Prizes**

# ANNUAL CONFERENCE PREVIEW

## Holiday Inn Boxborough Woods Reservation Request MAST – October 22-23, 2009

Name \_\_\_\_\_

Address \_\_\_\_\_

For Arrival On \_\_\_\_\_ Departure On \_\_\_\_\_

Please reserve \_\_\_\_\_ rooms for \_\_\_\_\_ people.

Rates: Standard Room \$109 Single or Double (plus taxes)

Names of person(s) sharing accommodations:

\_\_\_\_\_

Method of payment:

Discover

American Express

Visa

Master Card

Check or Money Order

Amount(s) \_\_\_\_\_

Credit Card Number \_\_\_\_\_ Expiration \_\_\_\_\_

I AUTHORIZE THE HOLIDAY INN BOXBOROUGH WOODS TO CHARGE MY ACCOUNT FOR ONE NIGHT'S DEPOSIT AND ALL APPLICABLE TAXES.

Card Holder Signature \_\_\_\_\_

Daytime Phone Number \_\_\_\_\_

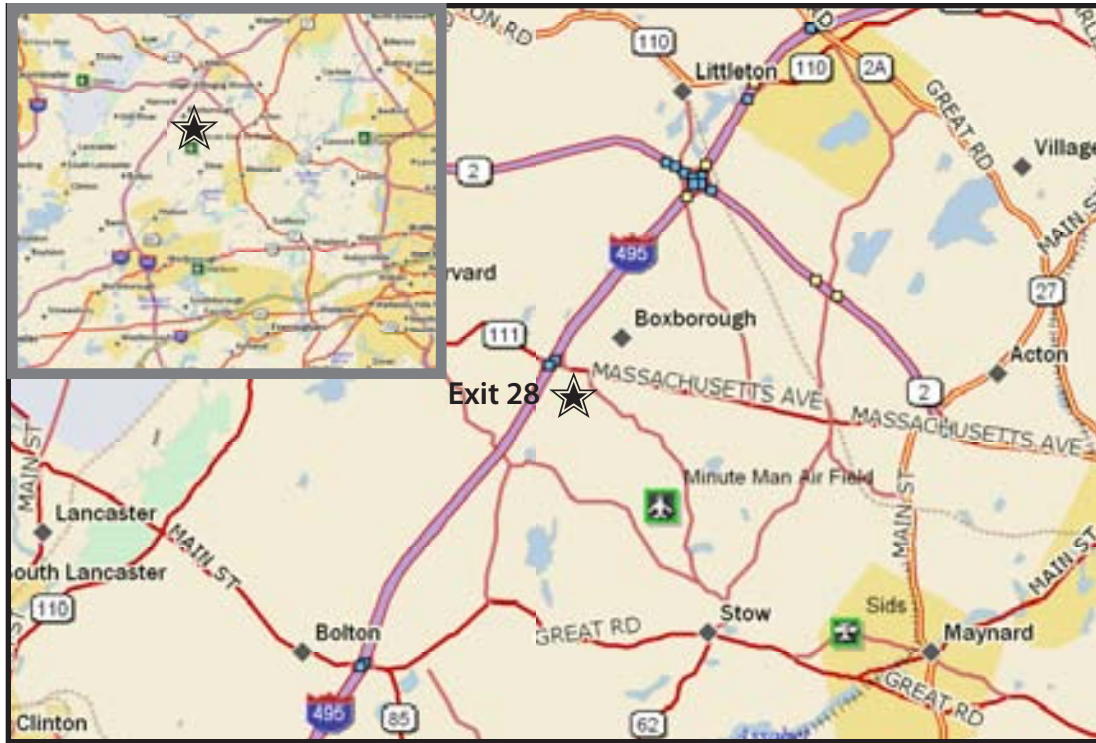
Checkout time is 12 noon. Rooms may not be available for check-in until 3:00 PM. **Reservation requests after 5 pm October 1, 2009 are subject to availability.** Room rates or type cannot be guaranteed.

Mail to:

MAST Conference Reservations  
Holiday Inn Boxborough Woods

# ANNUAL CONFERENCE PREVIEW

## Directions to Holiday Inn Boxborough Woods



**Holiday Inn Boxborough Woods**  
242 Adams Place  
Boxborough MA 01719  
(978)-263-8701

### From the North

- Route 3 South to Route 495 South
- Route 93 South to Route 495 South
- Route 95 South to Route 495 South
- Exit 28 to Route 111 (Boxborough/ Harvard). Turn right off the ramp, travel over the overpass, and take the first road on the right (Adams Place)

### From the South

- Route 3 North to Route 95 South to Route 495 North
- Route 295 North to Route 495 North
- Exit 28 to Route 111 (Boxborough/ Harvard). Turn left off the ramp, and take the first road on the right (Adams Place)

### From the East

- Route 128 South to Route 2 West, or
- Route 128 North to Route 2 West to Route 111 West. Follow Route 111 approximately 8 miles. Adams Place will be on the left before crossing Route 495.

### From the West

- Route 290 East to Route 495 North
- Exit 28 to Route 111 (Boxborough/ Harvard). Turn left off the ramp, and take the first road on right (Adams Place)

### From Logan Airport

- Route 90 (Mass Pike) West to Route 495 North
- Exit 28 to Route 111 (Boxborough/ Harvard). Turn left off the ramp, and take the first road on the right (Adams Place)

## 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.

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Worcester MA 01610

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Write: Sr. Kathy Livingstone, Membership Chair

127 Melvern Road

Worcester MA 01610

e-mail: [skathy@charter.net](mailto: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 [mast.nu/ads.html](http://mast.nu/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 Liscombe	
Publications	Ken Brody	781-784-5040
2009 Conference Chairperson	Lynn Gatchell	
2009 Conference Presenter Chairperson	Pat Harcourt	

Corrections: Please email any corrections or changes to [kwbrody@mit.edu](mailto: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	
Secretary	Therese Goulet	508-867-4268
Treasurer	Caryl Adamowitch-LaPorte	978-345-0413

### County Directors

Barnstable	(1 Vacant)
Berkshire	(1 Vacant)
Bristol	Dr. Gary F. Mazzola, (1 vacant)
Dukes/Nantucket	Capt. John Nelson
Essex	Amy Deacon, Mary Hatton
Franklin	Betsy Willis
Hampden	(2 Vacant)
Hampshire	(1 Vacant)
Middlesex	Mary Liscombe, Bradd Smithson, Carol Shestok, Jocelyn Smith, Joyce Croce*, (2 Vacant)
Norfolk	Tom Eldridge, Steve Cremer*, Mary Young*
Plymouth	Maureen Moir*, Jim Spinale*, (1 Vacant)
Suffolk	Gordon Estabrooks*, 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](http://www.MassScienceTeach.org)



Printed on recycled paper.

# Resources

## Websites and Others

### Improving the Teaching of Physics (Project ITOP) Courses

The Department of Physics and the School of Education at Boston University are continuing their offering of courses for physics teachers. The courses are part of the sequence Improving the Teaching of Physics (Project ITOP) offered in Boston and Chicopee. Partial tuition support for Project ITOP courses is provided by a grant from the Massachusetts Board of Higher Education and the Improving Teacher Quality Program.

The following courses will begin shortly.

- September 16 – October 28: NS 540 Section A1: Concepts in Physics I: Forces and Motion (2 credits). Meets at Boston University on Wednesdays from 4:30 to 7:30.
- September 10 – October 22: NS 545 Section B1: Concepts in Physics VI: Electromagnetism and Physical Optics (2 credits). Meets at Chicopee Comprehensive High School on Thursdays from 4:30 to 7:30.
- September 14 – November 2: NS 545 Section A1: Concepts in Physics VI: Electromagnetism and Physical Optics (2 credits). Meets at Boston University on Fridays from 4:30 to 7:30.

For additional information, visit the website [physics.bu.edu/teachers](http://physics.bu.edu/teachers) or contact Andrew Duffy (617-353-9089, [aduffy@bu.edu](mailto:aduffy@bu.edu)) or Peter Garik (617-353-4735 [garik@bu.edu](mailto:garik@bu.edu)).

**The K-12 TLC Teacher News Service** includes e-mail lists for many topics, and you are welcome to customize our service to your interests at [www.k12tlc.net/tnslist.htm](http://www.k12tlc.net/tnslist.htm).

### SPARKscience

**The 21st Century A Discussion Designed to Explore Transformative Science in K-12 Education Science Experience**

Location & Date:

Hosted by: PASCO Hartford, CT

September 23, 2009

Marriott Hartford Downtown

Times:

9:30 am---- **Registration**

10:00 am - 12:30 pm ----**Event** (Lunch will be served)

All participants receive a 1GB USB drive loaded with materials to support your science transformation agenda. One guest will win a SPARK Science Learning System

Registration is complimentary. Register Online! [www.pasco.com/transform/](http://www.pasco.com/transform/)

This event is for education executives and decision-makers interested in finding innovative ways to address shortfalls in science achievement.

### Read a Good Book Lately?

Sometimes there's just nothing as cozy as curling up with a good storybook. Whether you prefer turning real pages or virtual pages, you will enjoy the five spacey storybooks on The Space Place. Joining our classic stories in verse "Professor Starr's Dream Trip" and "Lucy's Planet Hunt" are the new "What's in Space," "Supercool Space Tools," and "The First Annual Planet Awards." All are available as richly illustrated online "books" with interactive page turning or viewable and printable Adobe Reader files. So settle down with a good and fun book at [spaceplace.nasa.gov/en/kids/storybooks](http://spaceplace.nasa.gov/en/kids/storybooks).

### A Handbook for the Discerning Science

**Teacher: The Science Education Review (SER)**

To enjoy excerpts from Volume 8, Issue 1, please click [www.scienceeducationreview.com/ser\\_8\\_1\\_excerpts.pdf](http://www.scienceeducationreview.com/ser_8_1_excerpts.pdf). ("I like the content of The Science Education Review. It makes me aware of so many things I have never previously thought about." Shu-Sheng Lin, National Chia-Yi University of Taiwan and member of the Editorial Review Board) 📖



## National Congress on Science Education Summary

Lynn Gatchell, *President-Elect*

The National Congress on Science Education was held July 15-19 in Miami. I attended the Congress as the MAST Delegate along with the District 1 Director Marilyn Richardson. There were 131 attendees with 45 voting delegates.

The resolutions that the Congress voted on came from the work of six focus groups, which met all day Thursday. The work consisted of reviewing work done at last year's Congress as well as current research. The groups then wrote resolutions. A galley walk mid-day gave an opportunity for other Congress delegates to review each focus group's work and make recommendations for changes or considerations. The afternoon was spent finalizing our work to submit to the Congress-at-large for a vote. Our evening activity took place at the Science Museum in Miami. We were given the opportunity to be up close to several animals in the collection and we learned about plans for a new improved museum. We were also treated to a program in the planetarium.

Friday and Saturday were spent in workshops

designed to help the State Chapters. The workshops were: *Media Training and Hot Topics Issues*, *Marketing Your Chapter for Success*, *Parliamentary Procedure*, *Budgeting and Financial Advice*, *Resource Development in a Tough Economy* and *Using NSTA's online networking communities to build connections within your own CAGS*.

The newest promotion from NSTA is the launching of "NSTA Communities". This is a network hosted on the NSTA website, which will allow every State Chapter to have a "group". I am already an individual member and have made several connections. I am hoping MAST will take advantage to this valuable resource, by establishing a state-wide group.

The closing luncheon was delightful. The delegates were given the final results from the NSTA board on all of our resolutions; feedback was very positive. We were then introduced to the committee that will organize next summer's Congress, in Las Vegas.

MAST received a Certificate of Recognition for being one of first three state chapters supporting the new John Glenn Science Center in Washington through the purchase of a paving stone. 🏗️

## Congress 2009 Resolutions

Ken Rosenbaum, *NSTA Chapter Relations Consultant*

The National Congress on Science Education (NCSE) is financially supported by the National Science Teachers Association (NSTA) and NSTA's State Chapters and Associated Groups. The Congress is an independent body that focuses on science education from local perspectives. The NCSE has had ten annual summer meetings. Congress delegates bring resolutions that reflect issues in science education to the Congress. NCSE resolutions may arise from the actions of the governing bodies of the State Chapters or the Current Issue Forums at the Congress meetings. There are three types of Congress resolutions: those that are addressed to the attention of the Chapters and Associated Groups for their consideration, those

that are addressed to the attention of the NSTA for consideration, and those which are statements of the position of the Congress on various issues.

The six Current Issue Forums were:

- Issues Forum 1: Resources For Retaining Teachers
- Issues Forum 2: Supporting Science Leaders
- Issues Forum 3: Meeting The Needs Of Diverse Learners
- Issues Forum 4: Components Of A Support System For Science Teachers
- Issue Forum 5: Optimizing Science In The Elementary Grades
- Issue Forum 6: K-8 Intergration Of Science & Mathematics

[continued on next page]

## National Congress Resolutions 2009 Addressed to the attention of the Chapters and Associated Groups for their consideration

*All the following resolutions were passed:*

### 7/09CNG4

Be it resolved that Chapter and Associated Groups of NSTA advocate that the state educational agencies and/or local agencies where appropriate recognize conference presenters with professional development hours for both the delivery and the preparation of sessions given at state and local conferences to encourage and promote science leadership.

### 7/09CNG5

Be it resolved that the Chapters and Associated Groups of NSTA encourage school districts to provide incentives for quality leadership activities in science education. Such incentives may take the form of recognition, workload adjustment, financial rewards, and/or credit for advancement.

### 7/09CNG7

Be it resolved that the NCSE encourages the CAGs to inform their members about resources available to support the education/instruction of diverse learners, e.g. NSTA communities and groups; peer-reviewed journal article archives, NSTA position statements about Multicultural learners and ELL, gender equity, students with disabilities; conference workshops and/or strands; webinars, etc., at NSTA.ORG web site.

### 7/09CNG8

Be it resolved that the National Congress on Science Education encourage Chapters, Affiliates and Associated Groups utilize the 2006 NSTA position statement “Professional Development in Science Education” by:

- advocating to state boards of education and other leaders to facilitate professional development for science teachers
- building capacity for collaboration among individual science teachers

### 7/09CNG9

Be it resolved that Chapters, Affiliates and Associated Groups disseminate and support the NSTA

Position Statement “Principles of Professionalism for Science Education.”

### 7/09CNG21

Be it resolved that CAGS consider collaboration with state math affiliates and other professional organizations to support the PD and implementation of high quality math/science integration.

### 7/09CNG22

Be it resolved that CAGS consider including conference strands that promote high quality professional development on the integration of math/science.

## National Congress Resolutions 2009 Position Statements

*All the following position statements were passed:*

### 7/09CNG12

Be it resolved that the National Congress on Science Education encourages participants of NCSE to participate throughout the year in an on-line NSTA community including but not limited to coaching science teachers.

### 7/09CNG13

Be it resolved that the NCSE 2009 supports a request for the opportunity from the Council for Elementary Science International (CESI) pending their Board approval to compile resources for dissemination in an electronic toolkit for educators to become more effective advocates for science as a core subject in the preK-8 curricula.

### 7/09CNG15

Be it resolved that the 2009 NCSE promotes, supports and advocates that elementary science education is critical to the foundation of science literacy and affects future science course selection and career opportunities.

### 7/09CNG16

Be it resolved that the 2009 National Congress on Science Education advocate teacher preparation and continued learning that focus on a natural integration of math and science education; ie accurate, research-based, high quality content through the context of

- Project based learning

- Problem based learning
- Technology rich opportunities
- Real world applications
- Literacy across content

## National Congress Resolutions 2009 Addressed to the attention of the NSTA Council and Board

### 7/09CNG1

Be it resolved that the resources available on the NSTA website be continued. It is also recommended that this work be expanded and communicated to the CAGs and pre-service programs to increase the awareness of these resources.

Congress Action: Passed

Council Action: 7/09CCCL4 Passed by Council

Board Action: No Board Action Taken

### 7/09CNG2

Be it resolved that NSTA define and establish focused organizational relationships with national associations of school administrators, school board, and informal educators to develop, support, and evaluate mechanisms that value science education leaders and the science leadership continuum. Additionally, NSTA shall disseminate these processes and resources for state chapters and affiliates to replicate.

Congress Action: Passed

Council Action: 7/09CCCL5 Passed by Council

Board Action: Following Replacement Motions Passed

### 7/09BOD7

Moved that in response to 7/09CCCL5 and 7/09CNG2 that NSTA communicate with national associations of school administrators, school boards, informal educators, state chapters and affiliates the value of the science teacher in the role of science education leadership.

### 7/09BOD8

Moved that in response to 7/09CCCL5 and 7/09CNG2 that NSTA compile and disseminate resources on science teacher leadership to chapters and associated groups.

### 7/09CNG3

Be it resolved that NSTA advocate that the state educational agencies recognize conference pre-

senters with professional development hours for both the delivery and the preparation of sessions given at NSTA-sponsored conferences to encourage and promote science leadership.

Congress Action: Passed

Council Action: 7/09CCCL6 Passed by Council

Board Action: Following Amended Motion Passed

### 7/09BOD9

Moved by Jean Tushie in response to 7/09CCCL6 and 7/09CNG3 that in order to encourage and promote science leadership, NSTA encourages state educational agencies to recognize conference presenters with professional development hours or similar recognition allowable by state law or policy for both the delivery and the preparation of sessions given at NSTA-sponsored conferences.

### 7/09CNG10

Be it resolved the National Congress on Science Education recommends NSTA compile and disseminate an appropriate set of resources to chapters, affiliates, and associated groups for the purpose of conducting principal/Administration professional development that supports inquiry-based science.

Congress Action: Passed

Council Action: 7/09CCCL7 Passed by Council

Board Action: Following Amended Motion Passed

### 7/09BOD10

Moved by Walter Smith in response to 7/09CCCL7 and 7/09CNG10 that NSTA's Professional Development Committee compile and disseminates an appropriate set of resources to chapters, affiliates, and associated groups for the purpose of conducting principal/Administration professional development that supports effective science instruction.

### 7/09CNG11

Be it resolved that the National Congress on Science Education encourages NSTA to include additional on-line resources to support instructional coaching models as effective professional development for teachers of science.

Congress Action: Passed

Council Action: 7/09CCCL8 Passed

Board Action: Following Amended Motion Passed

[continued on page 36]

## From the American Board for Certification of Teacher Excellence

### Collaborate to Better Prepare Teachers

With a mission to prepare virtually all children to be globally competitive, teacher preparation programs are finding the need for change and improvement. Administrators across Iowa seem to agree that better communication between teacher preparation programs and school districts is critical to determining how new teachers are doing.

### Non-Profit ABCTE's Initial Grant Draws to Close

ABCTE recently announced our move to self-sustainability as the organization's initial funding comes to a close. Since 2001, ABCTE has developed an alternative teacher certification program that has recruited over 7,500 potential teachers, issued over 1,800 certifications and is now being used in 9 states to help recruit, prepare and certify new teachers.

### Teacher Licensing Plan Worthy of Consideration

Indiana Superintendent of Public Instruction Tony Bennett recently proposed changes to teacher licensing in Indiana that included accepting ABCTE certification for the state's public schools. If adopted, school districts will have more flexibility in finding ideal teachers.

### Business is Brisk For Teacher Training Alternatives

Interest in teacher preparation programs has seen an increase and many are attributing this to the high unemployment rates across the country. Career changers and recent college graduates are turning not only to traditional preparation programs, but also to programs like Teach for America, The New Teacher Project, the American Board for Certification of Teacher Excellence

(ABCTE) and The New York Teaching Fellows.

### Carnival of Education Innovation

ABCTE recently launched the Carnival of Education Innovation, where you can browse the latest news in education innovation every Tuesday. You'll also find details within the carnival on how you can contribute news to it each week.

For more information on ABCTE please contact Eileen Proudlock at proudlock@abcte.org.

**This May, bestselling author Mark Kurlansky published a collection of recipes and food writings from the Great Depression Era called *The Food of a Younger Land*.** More than one reviewer has remarked with utter amazement how much American food has changed since the 1930s. Genetically modified crops! High fructose corn syrup! This week, we sat down with a copy and came up with a few of our own insights.

**(1) Health-food gimmicks have always been more appealing than counting calories (even in the 1930s).** Writer Don Dolan begins his essay, *Food a la Concentrate in Los Angeles*: There was a day when every diet-conscious person chanted "calories, Ya gotta watch your calories." Today the litany is "vitamins and minerals," a creed gaining more adherents every day. In the robust manner in which Americans accept the new, a principle of real dietary value has ballooned into that fabled panacea, the Elixir of Life.

Dolan goes on to describe what may have been the first corporate purveyor of diet fads: Anabolic Food Products, Inc. When it comes to quick-and-easy health fixes, exercise and moderation never stood a chance.

**(2) Dietary superstitions have come a long way.** Today's dietary naturalists have openly admitted that their approach to eating is based more on "feeling" than fact. But compared to the modern knee-jerk movement against technology and progress, dietary dogmas used to be even

[continued on page 32]

# Professional Opportunities

## Learning and Funding

### Life Sciences HHMI Outreach 2009 Fall Program at Harvard University

Each fall, Life Sciences-HHMI Outreach explores an important area of research in biology by offering five afternoons of faculty lectures, laboratories, tours and related activities. This fall, faculty members who conduct research involving animal physiology and morphology have been invited to speak to participating teachers.

The program will be held on Wednesday afternoons from 4:00PM to 7:00PM on October 7th and 21st, November 4th and 18th, and December 2nd.

- 4:00-6:00PM Lectures, Laboratories and related activities
- 6:00-7:00PM Dinner provided by the Outreach Program

This program is FREE and funded by the Department of Molecular and Cellular Biology and the Howard Hughes Medical Institute.

Applicants must be high school biology teachers or curriculum directors at public, private, parochial or charter schools. All correspondence regarding the program takes place via email.

Application Deadline: September 25, 2009  
To apply visit: [www.outreach.mcb.harvard.edu](http://www.outreach.mcb.harvard.edu)

### Science & Engineering Saturday Seminars Fall, 2009

Designed for science teachers; new teachers are especially welcome. Five Saturdays each term; 8:30-1 at UMass Amherst Educational materials, refreshments, parking, PDP's included. Advance registration is required; capacity is limited. Cost \$30 per session, \$120 for all five sessions. 4 PDP's per half day session; option for 3 grad credits at reduced cost with extra work.

Sept. 12. *Nanotechnology*. Lederle 1033. Mark Tuominen, Physics Department and Center for Hierarchical Manufacturing. Another in a series on nanotechnology; previous attendance is not required. Nanotechnology deals with materials

on the scale of 1 to 100 nanometers; a nanometer is one-billionth of a meter, or about 10 atomic diameters. Such materials have many important and novel properties. Topics will include going down the powers of ten scale, creating nanofilms, why size matters and nanofilters for clean water.

Oct. 3. *Illuminating Life: What's New and Noteworthy in Luminescence Spectroscopy and Imaging?* Lederle 1033. Pat O'Hara, Chemistry, Amherst College. Many of today's advances in biotechnology and medical imaging have been made possible through clever coupling of mature ideas from physical chemistry and new advances in molecular biology. Over 100 years ago, physicists such as Stokes and Rayleigh provided a framework for understanding such phenomena as the fluorescence of light from excited molecules and the scattering of light from large particles in solution. Today these ideas and others have been co-opted by incredibly clever molecular biologists who have put them to work for in vivo tumor imaging, or to understand disease morphology in Tay-Sachs or Alzheimer's disease. This workshop will explore several of these technological breakthroughs and use them as a vehicle for exploring the foundational physical and chemical ideas that make them possible.

Oct. 17. *Using Ecology: Making Science Real*. Location to be announced. Steve Brewer, Biology Department. Ecology is the science of organisms interacting with each other and their environment. Ecology activities can offer an opportunity for students to practice hands-on science in their local environment. Global climate change and a renewed focus on the limitations of the environment to support endless growth are topical means for students to study fundamental ecological principles. Workshop participants will explore a variety of ecological problems and generate ideas for making observations, posing problems, collecting data, and developing persuasive presentations of their findings.

Oct. 31. *Global Climate Change*. Julie

Brigham-Grette and Ray Bradley, Geosciences. Lederle 1033. Global temperatures have been steadily rising as we burn fossil fuels, with the biggest effects in the polar regions. We will explore the relationship between carbon dioxide levels and temperature, modeling the effects of climate change on ocean currents, and more.

Nov. 14. Supporting Statistical Reasoning for Mathematics & Science Students. Location to be announced. Sandra Madden, Math Education. Often people are asked to make decisions in the presence of uncertainty. By carrying out carefully designed experiments, one can generate convincing evidence to answer such questions as

- Is a certain medicine more effective for some condition than doing nothing?
- Do plants grow better with fertilizer A than with fertilizer B?
- Does chewing gum make students perform better on mathematics tests?

We will explore characteristics of carefully designed experiments, investigate an innovative curriculum unit for supporting statistical reasoning, and introduce several tools (including one free and widely available internet-based software tool) for supporting statistical investigations in a sense-making manner that is broadly accessible to students and teachers.

Nov. 21. Weather cancellation makeup date if needed.

Dec. 5. Recall for those registered for graduate credit.

Graduate credit option: There is a charge of \$300 for 3 Continuing Education credits plus a \$45 registration fee. This is in addition to the \$120 STEM Education Institute fee. Teachers may obtain credit for the seminar as many terms as they wish, but only 3 credits may be applied to UMass Amherst degrees. A lesson plan and a book report will be required for those enrolled for graduate credit. Register with Continuing Education or the UMass Graduate School.

Questions: Mort Sternheim, [mort@umassk12.net](mailto:mort@umassk12.net), 413-545-1908, [www.umassk12.net/sess](http://www.umassk12.net/sess)

Online seminar registration and payment: [www.umassk12.net/sess/register.html](http://www.umassk12.net/sess/register.html)

Required for everyone whether or not they are registering for graduate credit.

### **Calling All K12 Science Teachers: Toyota TAPESTRY Program Now Accepting Entries for the 20th Annual Science Grant Competition**

The Toyota TAPESTRY Grants for Science Teachers program, sponsored by Toyota Motor Sales, U.S.A., Inc., and administered by NSTA, is now accepting entries for the 2009/2010 competition. Now in its 20th year, the program offers grants up to \$10,000 to K12 science teachers for innovative projects that enhance science education in their school and/or school district over a one-year period.

Fifty large grants and a minimum of 20 mini-grants totaling \$550,000 will be awarded this year. Individual science teachers or a team of up to five teachers can submit proposals in one of three categories: physical science application; environmental science education; and integrating literacy and science. A judging panel convened by the NSTA will select the award-winning projects based on several criteria, including their innovative approach in teaching science and ability to create a stimulating and hands-on learning environment.

Since the program's inception in 1990, Toyota TAPESTRY grants totaling more than \$8.6 million have been awarded to science teachers across the country. More than 2,000 teachers have used those funds to develop and execute extraordinary programs that helped hundreds of thousands of students nationwide make a passionate connection with science.

For more information about the Toyota TAPESTRY Grants for Science Teachers program or to learn how to apply, visit [www.nsta.org/pd/tapestry](http://www.nsta.org/pd/tapestry). Applications must be submitted no later than January 18, 2010 to be considered. Don't delay, apply now!

### **Mapping Massachusetts Communities Workshop: An Introduction to GIS & Community Analysis \*Ask about our Non-Profit Discount\***

Boston: September 24th and 25th, 2009\*

CompuWorks Systems - 99 Bedford St Boston, MA 02111

\*These are one-day workshops (8:30 am - 4:30 pm). Participants choose which day to attend.

More Info/Registration [www.nur-online.com](http://www.nur-online.com)

Audience: Beginners, anyone interested in

mapping their community. Government Agencies, Non Profits, Environmental Groups, Students, etc...

**Already taken this workshop? Now offering ArcGIS Training: Refresher and Advanced Classes (see website for more information)**

Participants will learn to use ArcGIS 9.3.1 to do the following:

**Create Thematic Maps:** Participants will learn to create thematic maps of their own data, and display spatial trends in information.

**Address Mapping (Geocoding):** Participants will learn to map addresses of their clients, their projects, or incidents such as crime and disease.

**Download and Map Census & American Community Survey Data:** Participants will learn to extract and map current Census data such as poverty, race, language, population, transportation, education, and workplace characteristics.

Participants will also learn to:

- Conduct spatial queries
- Download free shapefiles
- Create well-designed maps

Mapping techniques transferable to all other communities. Exercises are designed for beginners, Intermediate Excel skills required.

Materials:

- Comprehensive workshop (75 pages), which includes the presentation, exercises, and reference worksheets.
- ArcGIS (ArcView 9.3.1) software 60-day trial CD set

*Praise for the Introduction to GIS & Community Analysis Workshop*

Upton Massachusetts AIDS Action Committee: "Very interesting course and a great introduction."

Boston Private Industry Council: "Very useful - practical exercises that introduced me to the

features and tools of ArcGIS and its potential for displaying information."

University of Massachusetts Medical School: "This was a great intro to GIS. I feel like I can start to incorporate GIS into work projects."

City of Boston: "I attained a good overview ArcGIS, and a basic understanding of shape files, joins, queries."

New Urban Research, Inc. is a national social research organization specializing in quantitative and spatial community analysis. NUR is an ESRI Business Partner. New Urban Research, Inc. 2301 NW Thurman Street, Portland, Oregon 97210 | 877.241.6576 | [www.nur-online.com](http://www.nur-online.com)


**September 17, 2009 The Northeast Sustainable Energy Association (NESEA)** is offering a workshop for educators to learn about two engaging programs designed to empower youth with introductory knowledge of renewable energy and to encourage and reward them for becoming agents of positive change.

Location: NESEA, 50 Miles St., Greenfield, MA 01301

Registration is required. Download a form from [www.nesea.org/k-12/events](http://www.nesea.org/k-12/events) & FAX or email it to us. Or email name; school or organization; position/grade level; mailing address with zip code; telephone and preferred email to [sreyes@nesea.org](mailto:sreyes@nesea.org)

Fee: Free to educators living or working within the Western Mass Electric Co. area or \$20.00 for others. Visit [www.nesea.org](http://www.nesea.org) and click on K-12 Educators

At the workshop, you will receive a guidebook for each program along with several ideas and resources, and a chance for some hands-on activities.

Contact: Arianna at [acollins@nesea.org](mailto:acollins@nesea.org) or Susan at [sreyes@nesea.org](mailto:sreyes@nesea.org) 

## SCIENCE IS FUN

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40 Years of Once Upon a Christmas Cheery, In the Lab of Shakhshiri ... And Beyond!

Professor Bassam Z. Shakhshiri, William T. Evjue Distinguished Chair for the Wisconsin Idea and Director Wisconsin Initiative for Science Literacy

Department of Chemistry  
University of Wisconsin  
1101 University Avenue  
Madison, WI 53706-1396

Telephone: 608-262-0538 Facsimile: 608-262-8634

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## News Clips

CONTINUED FROM PAGE 28

more arbitrary:

- You will receive mail from the direction in which your pie is pointing, when it is set down at your place at the table.
- If you put a piece of wedding cake under your pillow for seven successive nights, on the seventh you will dream of your future husband.
- If a dandelion or buttercup placed under your chin throws a yellow light, you “love butter.”

**(3) Food snobbery is nothing new.** Michael Pollan wrote an entire book defending what he views as the only “real” food: organic and locally-grown. But back in the 30’s and 40’s, a writer named Claire Warner Churchill could easily have given Pollan a run for his money. Here’s an excerpt from what may be the longest essay about mashed potatoes ever written, *An Oregon Protest Against Mashed Potatoes*.

“There ought to be a law, that’s what there ought, a law against mashed potatoes being served in restaurants. There ought to be a law against even the use of the words on menus. Somebody ought to sue someone for libel”.

“No, I am not to be fooled by your whipped potatoes, your fluffed potatoes, your watered pastes that pass in many restaurants for honest to God mashed potatoes. I know them for what they are: horrible travesties upon a self-respecting dish of mashed, and I mean mashed, not macerated potatoes”.

It’s hard to tell, but Churchill appears to have been kidding about mashed potato laws and libel lawsuits. If only we could say the same about today’s food elitists.

*(Editor’s note: For more recommended reading by Kurlansky, check out Salt: A World History.)*

**Heard at the ChemEd Conference, August 2009: Dr. Richard R. Antcliff**, Director of Advanced Planning and Partnerships for NASA at Langley Research Center spoke on “Education Innovation.”


Dr. Antcliff illustrated how technology is growing exponentially while education is not. He notes institutions like MIT are putting their courses on-line and for the public to access them—as well as other learning situations is al-

ready here. He mentioned that Phoenix University is the world’s largest university with over 60,000 students enrolled on-line.

Industry is taking full advantage of the technologies arising from NASA research and so should high schools. Nasa has a large staff of very qualified teachers who have written “everything for any science classroom teaqacher to use.” Dr Antcliff believes that all of the brain’s functions will have been mapped by 2060. “Don’t you want all available technology for education?” We don’t need bricks and mortar any more, nor does the teacher, “effort is associated with success.” *(Editor’s note: Look up Blue Brain: on a browser.)*

At this time, according to Dr. Antcliff, life expectancy is expanding at a rate of one year/year—immortality? Go to [nasa.gov](http://nasa.gov) and click on all education pages.

**Dr. John Warner**, President and CTO of Warner Babcock Institute for Green Chemistry (right here in Wilmington, MA) gave a presentation: *Green Chemistry: Helping Good Scientists to Not Make Bad Molecules*. He noted that many groups that have no idea of chemistry are going green because chemists are making green molecules. The field is growing from its start about 15 years ago. His premise for teachers is “to make chemists is more important than to make chemicals.”

**Dr. Joe Schwarcz**, Director of McGill University Office for Science and Society, an exciting and entertaining and engaging writer and speaker, came down from Canada to say that people must know the numbers about controversial subjects. “People who ‘oppose’ something really don’t want it proven either right or wrong because they would have nothing to oppose.” 

## The Hidden Problem with Twitter

by Carin Ford

Oxford University Press has been studying the language of Twitter these past six months – take a look at what they’ve found.

### Twitter-Grammar

Seems the most commonly tweeted word is (hold the drum roll) “the.” And because Twitter thrives on users talking about themselves, the second most commonly tweeted word is “I.” Interestingly, “I” ranks tenth in regular written communication.

Oxford University Press also found gerunds are heavily utilized by the Twitter crowd – among the most popular words are “going,” “getting” and “watching.” Tech terms such as “Google,” “Facebook,” “blog” and “Mac” also rank high with users.

Here’s more of what came from monitoring 1.5 million random tweets. There were:

- 2,098,630 total sentences
- 22,431,033 total words
- close to 15 words per tweet, and
- nearly 1.5 sentences per tweet.

And compared to formal writing, the casual lingo of Twitter includes a greater frequency of “OK” and “f\*\*\*.”

So here’s the question: Is Twitter – along with instant messaging and texting – contributing to the destruction of language skills among college students?

Some of the 108 Responses to “The hidden problem with Twitter” include:

Sasha Sidorkin Says: No more than oral conversation would ruin the written language skills. No more than e-mail or texting would. You cannot destroy grammar, because it is inborn. You could destroy spelling, but it is not essential, is it?

Marg Says: Instant messaging, texting, and tweeting is just like reading another dialect. Cockney, Caribbean, Louisianian, or many of the other greats of the world.

Courtney Crocker Says: I believe that researchers should acknowledge the difference in spoken language, which is rarely grammatically correct, and written language. Twitter, texting, and social networking Web sites are generally cataloged by college students as an electronic conversation among their many means of communication. Spoken language is being captured in electronic written formats. While

they are written down, that does not mean that researchers can confuse these “conversations” as the communicator’s formal writing structure. You would never accuse an author of having poor language skills based on a casual conversation that you had with the author. In the same way, you can not judge the language skills of college students based on their tweets, texts, and posts to networking Web sites. If college professors suddenly experience an influx of papers that show no understanding of how to properly write Standard English, then I believe that would be cause for worry. Until then, unless we are going to start judging written language skills on verbal communication skills, no thought should be put into the “structure” of electronic conversations, or on their “contribution to the destruction of language skills among college students.” There is not the needed interdependence between the two to allow for that conclusion.

Brandi Says: I fully believe that Instant Messaging, texting, twittering, and social networking via the web are all contributing to a disintegration of English language skills. I text, IM, and socially network, and my friends and family actually tease me because I still utilize the skills I was taught in school. It is shameful that the generations that will be running our country can’t spell the word “anyway.”

Bonita Lenger Says: Yes, I believe the tech devices of today are destroying not only the language skills, but the social skills of our young people today. I have heard stories of young people in the same room that chose to text each other rather than talk. What a shame!

C Dzadek Says: Twitter is probably yet another sign of our grotesque self-centeredness, but it’s not destroying our language skills. Contrarily, I propose that the brevity necessitated by just 144 characters directly challenges users to compress their words/thoughts – a quality that is definitely lacking in the writing produced by college students. Tweeting might turn us all into poets. I find the majority of college students still understand that “lol” doesn’t belong in a term paper.

Catherine Politi Says: Did the abbreviated wording used in telegrams destroy the English language? I don’t think so. Neither will Twitter, or texting in general – as long as schools continue to stress good language skills in the classroom. As an English teacher and student of linguistics, I realize that English and all other living languages are constantly evol-

*[continued on next page]*

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ing, so Twitter and its “siblings” will affect English, but not to necessarily destroy or devalue it. As for spelling, well, English is a terrible model for spelling, so maybe these mediums will improve it!

*(Editor’s note: I read through all the replies at this time and concluded that most people believe that twitter will not destroy grammar, that college papers will continue to be written grammatically correct, that the message is just a written version of what we are saying verbally, and that we should*

*not get all hot and bothered by it.) **What I think is important is for you to join this website.** Even though it is aimed at higher education teachers, you will find many very interesting and enjoyable articles, and ideas that you can use. [www.higheredmorning.com](http://www.higheredmorning.com). Drop me a note if you cannot get to the site and I will e-mail you the full list of replies—they are quite interesting and fun.) 📧*

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## SARSAT to the Rescue

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

If a plane crashes in the woods and nobody hears it, does it make a sound? Never mind contemplating this scenario as a philosophical riddle. This can be a real life or death question. And the answer most of the time is that, even if no people are nearby, something is indeed listening high above. That something is a network of satellites orbiting about 450 miles overhead. The “sound” they hear isn’t the crash itself, but a distress signal from a radio beacon carried by many modern ships, aircraft, and even individual people venturing into remote wildernesses. In the last 25 years, more than 25,000 lives have been saved using the satellite response system called Search and Rescue Satellite-aided Tracking (SARSAT). So what are these life-saving superhero satellites?

Why, they are weather satellites.

“These satellites do double duty,” says Mickey Fitzmaurice, a National Oceanic and Atmospheric Administration (NOAA) systems engineer for SARSAT. “Their primary purpose is to gather continuous weather data, of course. But while they’re up there, they might as well be listening for distress signals too.”

In February, NASA launched the newest of these Polar-orbiting Operational Environmental Satellites (or POES) into orbit. This new satellite, called N-Prime at launch and now dubbed NOAA-19, prevents a gap in this satellite network as another, aging NOAA satellite reached the end of its operational life.

“The launch of N-Prime was a big deal for us,” Fitzmaurice says. With N-Prime/NOAA-19 in place, there are now six satellites in this network. Amongst them, they pass over every place on

Earth, on average, about once an hour.

To pinpoint the location of an injured explorer, a sinking ship, or a downed plane, POES use the same Doppler effect that causes a car horn to sound higher-pitched when the car is moving toward you than it sounds after it passes by.

In a similar way, POES “hear” a higher frequency when they’re moving toward the source of the distress signal, and a lower frequency when they’ve already passed overhead. It takes only three distress-signal bursts—each about 50 seconds apart—to determine the source’s location. Complementing the POES are the Geostationary Operational Environmental Satellites (GOES), which, besides providing weather data, continuously monitor the Western Hemisphere for distress signals. Since their geostationary orbit leaves them motionless with respect to Earth below, there is no Doppler effect to pinpoint location. However, they do provide near instantaneous notification of distress signals.

In the future, the network will be expanded by putting receivers on new Global Positioning System (GPS) satellites, Fitzmaurice says. “We want to be able to locate you after just one burst.” With GPS, GOES will also be able to provide the location of the transmitter.

Download a two-page summary of NOAA-19 at [www.osd.noaa.gov/POES/NOAA-NP\\_Fact\\_Sheet.pdf](http://www.osd.noaa.gov/POES/NOAA-NP_Fact_Sheet.pdf). The Space Place gives kids a chance to rescue stranded skiers using their rescue beacons. The Wild Weather Adventure game awaits them at [spaceplace.nasa.gov/en/kids/goes/wwa](http://spaceplace.nasa.gov/en/kids/goes/wwa). 📧

# Thousands to be Awarded To Innovators in Science Education

*Vernier and NSTA open awards that celebrate creativity among educators in STEM Subjects and data collection*

BEAVERTON, Oregon, July 31, 2009 – Each year Vernier Software & Technology and the National Science Teacher's Association (NSTA) present the most innovative science teachers in the country with the Vernier Software & Technology/NSTA Technology Award. The awards, valued at \$3000 each, are given to up to seven educators judged to have created the best inquiry-based, hands-on learning activities using data-collection technology interfaced with computers, graphing calculators and other handheld devices such as the Vernier LabQuest.

Up to one elementary teacher, two middle school teachers, three high school teachers and one college-level educator will receive the technology awards. Each award consists of \$1000 in cash, \$1000 in Vernier equipment, and up to \$1000 toward travel and expenses for attending NSTA's 2009 National Convention. Entries are due by November 30, 2009 and will be judged by a panel of experts appointed by NSTA. Educators can be nominated or self-nominate for the awards.

Access to the online application and guidelines are available on the Vernier web site at [www.vernier.com/grants/nsta.html](http://www.vernier.com/grants/nsta.html)

Winning ideas have included using a LabQuest to monitor environmental conditions in aquatic tanks and the effects of nano-sized particles on aquatic species, as well as to monitor water quality in various water sheds that feed into large lakes.

Winning educators have also collected and used data by attaching a microphone probe to a LabQuest to capture a graphical representation of notes to teach students how to apply what they have learned when designing a musical instrument and had students investigate green house gas emissions during Atlanta's rush hour, the fourth busiest in the country. Students then compared the relationship between the amount of CO<sub>2</sub> emitted and the cor-

responding outside temperatures.

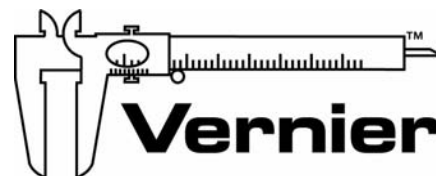
"Our goal at Vernier is to get teachers and students excited science and it is our hope that more and more students become interested in STEM careers. Hands-on activities using probe-wire allow students to conduct experiments using 21<sup>st</sup> century technology," said David Vernier, co-founder of Vernier and former physics teacher. "This awards program has been successful in both honoring creative, forward-thinking science teaching and in bringing these techniques to other educators to use in the classroom."

Applications should include an application form, an abstract of the program in 250 words or less, a program description, a copy of an actual lab activity, a nominee's Vita, three letters of support, plus a completed and signed application checklist. Electronic submissions are preferred, but application materials may be mailed to: NSTA, Vernier Technology Awards, 1840 Wilson Boulevard, Arlington, VA 22201-3000. For more information, e-mail NSTA at [awards@nsta.org](mailto:awards@nsta.org).

## About Vernier Software & Technology

Vernier Software & Technology has been an innovator of data-collection technology for 28 years. Creating easy-to-use and affordable science interfaces, sensors, and software, their products can be found in education from elementary school to college. Vernier helps teachers enhance their science curriculum, increase learning, and build students' critical thinking skills. Vernier's technologies are in use worldwide in more than 125 countries. For more information visit [www.vernier.com](http://www.vernier.com).

Daylene Long, Vernier Software & Technology  
503-277-2299 [dlong@vernier.com](mailto:dlong@vernier.com)



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## Resolutions

CONTINUED FROM PAGE 27

### **7/09BOD11**

Moved by Page Keeley in response to 7/09CCL8 and 7/09CNG11 to encourage NSTA to explore ways to support content coaching in science as an effective professional development strategy for science teachers.

### **7/09CNG14**

Be it resolved that NCSE recommend that the NSTA Position Statement: Elementary School Science (2002) be revised and updated in an expedited fashion. Recommendations for revisions and updates include:

- allocating a minimum of 90 minutes per week to inquiry based science instruction
- promoting targeted professional development/ learning for elementary teachers in science content and instructional strategies
- recognizing the significant learning advantages of integrating science into other content areas
- emphasizing the links between the use of inquiry strategies and increased student learning
- connecting elementary science to future success in education and career opportunities

Congress Action: Passed

Council Action: 7/09CCL9 Passed as amended by deleting “*in an expedited fashion*”

Board Action: Following Amended Motion Passed

### **7/09BOD12**

Moved by Vanessa Westbrook in response to 7/09CCL9 and 7/09CNG14 that the NSTA Position Statement: Elementary School Science (2002) be revised and updated.

### **7/09CNG17**

Be it resolved that NSTA considers the development of “products” that support high quality integration of math/science (e.g. pod casts, blogs, journal articles, NSTA press publications.

Congress Action: Passed

Council Action: Following Amended Council Motion Passed

### **7/09CCL10**

Moved by Linda Bates in response to 7/09CNG17 to recommend to the Board that NSTA continue

to develop products and services that support high quality integration of math/science (e.g. pod casts, blogs, journal articles, NSTA press publications.)

Board Action: 7/09BOD13 Defeated

### **7/09CNG18**

Be it resolved that NSTA considers a Research Dissemination Conference on math/science integration.

Congress Action: Passed

Council Action: 7/09CCL11 Passed

Board Action: Following Amended Motion Passed

### **7/09BOD14**

Moved by Vanessa Westbrook in response to 7/09CCL11 and 7/09CNG18 to explore various avenues for professional development on the research-based connections between mathematics/science integration.

### **7/09CNG19**

Be it resolved that NSTA considers offering a summer institute on math/science integration.

Congress Action: Passed

Council Action: Following Amended Motion Passed

### **7/09CCL12**

Moved by Linda Bates in response to 7/09CNG19 to recommend to the Board that NSTA consider collaborating with NCTM in offering a summer institute on math/science integration.

Board Action: 7/09BOD15 Defeated

### **7/09CNG20**

Be it resolved that NSTA considers further collaboration with NCTM and other professional organizations to support the PD and implementation of high quality math/science integration.

Congress Action: Passed

Council Action: 7/09CCL13 Passed

Board Action: 7/09BOD16 Defeated



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Robert F. Siggins, *President*  
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**All Materials Due by September 26, 2009**

## Nomination

The *Massachusetts Science Educators Hall of Fame* is looking for nominations for 2009. Nominate someone you know and please share copies of this with your colleagues and with publications of the science and science education publications you receive.

The requirements for membership are:

1. The individual should have been involved in science education in Massachusetts for a minimum of twenty years.
2. The individual should have made extraordinary contributions to the advancement of education in the sciences and/or science teaching in Massachusetts.
3. Selection criteria are:
  - a. Has had an effect in school(s) and/or system(s).
  - b. Has had an effect statewide/regionally.
  - c. Has had an impact nationally.
  - d. Has introduced/modified new teaching/learning programs.
  - e. Has done workshops and lectures for student groups.
  - f. Has publications related to science/education of value to science educators.
  - g. Has provided service to professional organizations.
  - h. There is evidence of enthusiastic and continual search for knowledge.
  - i. There is evidence of leadership in science education.
  - j. There is evidence of long-term impact on students.
  - k. There has been recognition of contributions such as awards/citations from recognized groups.

## Nominator

Many science educators in Massachusetts are deserving of recognition. We need your help in identifying the most dedicated individuals in our state. The procedure for nomination is:

1. Send the name, address, e-mail address and telephone number of your nominee to the name listed above. Include one page telling why you are nominating this person.
2. Inform the nominee of your nomination and tell them to provide us with: (1) an up-to-date resume and (2) three letters of reference. Please limit these references to two pages each.

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Dues are payable as of the new fiscal year, January 1. Dues are: regular \$20, student or retiree \$5, foreign \$20, Joint MAST/MSELA \$35. Make checks payable to: MAST

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*MAST received a Certificate of Recognition for their leadership gift in support of the John Glenn Center for Science Education. Shown receiving the certificate from NSTA President Francis Eberle is MAST President-elect Lynn Gatchell.*

## CALENDAR

Date	Activity
<b>October 21-24, 2009</b>	The Southeast Regional Meeting of the American Chemical Society will be held in San Juan, Puerto Rico. For information: <a href="http://www.sermacs2009.org">www.sermacs2009.org</a>
<b>October 22-23, 2009</b>	MAST Fall Conference, <b>Science: A Voyage of Discovery</b> . For more information see <a href="http://www.MassScienceTeach.org">www.MassScienceTeach.org</a> .