

# **New Hampshire Science Teachers' Association**

**Fall Newsletter (E-Edition), 2011**

**Welcome-back-to-school and Fall Conference Issue**

NHSTA Newsletter Editor: Paul Williams

*Volume 8, Issue 1*

*Fall 2011*

**New Hampshire Science Teachers' Association**

**K-12 Science Education Conference**

**Sunday, October 23, 2011 - Monday, October 24, 2011**



## **Church Landing, Meredith, New Hampshire**

The headquarters for the conference will be Church Landing, but we will be using the Inn at Mill Falls and the Chase House for breakout sessions on Monday. If you are planning on spending the night we strongly encourage you to book early as rooms are booking fast. Contact the inns directly (info below—one number and one web site) and inform them that “you are an NHSTA science teacher and are planning on attending our conference” to get the best rates. There are four inns in Meredith: Church Landing, The Chase House, Bay Point, and Mill Falls.

The Inn & Spa at Mill Falls, 312 Daniel Webster Highway, Meredith, NH 03253

Web address: <http://millfalls.com> phone: 800-622-6455.

Full Conference Booklet begins on page 3 and continues through page 14

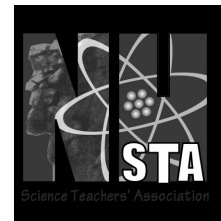


## NHSTA Board of Directors, 2011/2012

### Inside this issue:

Fall Conference Booklet	1-14
The Little Nature Museum, NatureFest, 2011	15
NASA Space Place	16—19
Useful Info from Flinn.com	20-21
Free Resources from an NSTA Author	22
Reflections on Conferences	23
NHSTA Conference Vendors—Thank you	24-25
Coleopterist Society Youth Incentive Award	26-27
Material Safety Data Sheets” by Brian Wazlaw, Ed.D.	28-30
Science News for Kids	31
Celebrate Physiology Week	31
Join/Renew your membership in NHSTA	33

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**Office Manager**, Newsletter Editor, Database Engineer, Conference Organizer – Paul Williams;  
**Annual Fall Conference**—October 23 and 24, 2011 at Church Landing, Meredith.



### Annual Spring Conference—Date: TBA

*The New Hampshire Science Teachers’ Association is the professional science teaching organization for our state. Its purpose, as stated in its constitution, is to promote and improve science education in New Hampshire. NHSTA membership consists of all people interested in science education who have paid their regular membership dues. Dues are presently \$20.00 per year. NHSTA is a volunteer organization run by an elected Executive Board consisting of a president, first vice-president, second vice-president, secretary, treasurer, and director-at-large. The Board of Directors is appointed by the Executive Board and represents New Hampshire’s geographic regions and its various educational levels and disciplines. The Board meets monthly. For more info visit [www.nhsta.net](http://www.nhsta.net) NHSTA, PO Box 583, Littleton, NH 03561*

**Note:** *Although we try and keep announcements current, it is possible that sign-up dates may have elapsed by the time you get this. Check via phone or web addresses to be sure.*

**New Hampshire Science Teachers' Association**  
**K-12 Science Education Conference**  
**Sunday, October 23, 2011 - Monday, October 24, 2011**  
**Church Landing, Meredith, New Hampshire**

<b>KEY TO ABBREVIATIONS</b>			
<b>Code</b>	<b>SCIENCE CONTENT</b>	<b>Code</b>	<b>GRADE SPAN</b>
<b>ES</b>	Earth/Space Science	<b>E</b>	Elementary
<b>EV</b>	Environmental Science	<b>M</b>	Middle School
<b>LS</b>	Life Science	<b>H</b>	High School
<b>EC</b>	Ecology	<b>All</b>	K-12
<b>PS</b>	Physical Science	<b>Code</b>	<b>FORMAT</b>
<b>T</b>	Technology	<b>DE</b>	Demonstration
<b>A</b>	Assessment	<b>DI</b>	Discussion
<b>LIT</b>	Literacy	<b>L</b>	Lecture
<b>S</b>	Safety	<b>HO</b>	Hands-on

**NHSTA FALL CONFERENCE SCHEDULE**

**Sunday, October 23, 2011**

12:00 - 6:30     **Exhibits**

9:00-4:00	<b>Field Trip Registration</b>	Lobby
8:30-12:15	<b>Half Day Field Trips</b>	must be pre-registered
9:00-3:00	<b>Full Day Field Trips</b>	must be pre-registered
12:00-3:00	<b>Half Day Field Trips</b>	must be pre-registered

4:30-6:30     **Social Hour/Share-a-thon/Rock Raffle**

Hors d'oeuvres and cash bar. An opportunity to mingle with your colleagues! This will also be a share-a-thon of lessons/ideas for the classroom and part of the rock raffle. If you have something you want to share, bring it along!

**SUNDAY FIELD TRIPS: 8:30 am – 12:15 pm, 9:00 am – 3:00 pm, 10:00—2:00, or 12:00 pm - 3:00 pm. Pre-Registration Required. Please note meeting times and locations**

**FT1. Natural History of the Squam Range**

**Location:** Squam Range - Holderness NH (Mt Percival, Mt Morgan or Rattlesnake Mt)

**Content:** LS, EV ; **Time Frame:** 10:00 am—3:00 pm; **Level:** ALL. **Presenter:** Staff, Squam Lakes Natural Science Center

**Description:** The natural areas throughout NH provide wonderful opportunities for people to explore, Discover and learn. Direct observation of plant life, animal signs and other teachable moments throughout the landscape offer individuals a better understanding of the complexity and diversity of life in NH's lakes region. Participants should wear sturdy hiking shoes, bring a bag lunch and water. Hiking will be a moderate level.

**Directions:** Directions from Meredith: Head west on US Route 3 and 25 into Holderness. After about 8 miles turn right on to Route 113 as you enter the village of Holderness - look for signs to the Science Center (you will pass the entrance to the Science Center as you continue driving). Travel about 5 miles down Route 113 and there will be a dirt gravel parking area to the left and right side of the road. Pull into the parking area on the left side of the road.

### **FT2. Mushrooming Madness!**

**Location:** Hamlin Recreation Area, Meredith, NH

**Content:** LS; **Time Frame:** 1/2 day (8:30 AM - Noon); **Level:** M/H

**Presenter:** Rick Van de Poll, Ecosystem Management Consultants

**Description:** Fall mushroom forays are an exceptional way to introduce a large number of ecosystem process concepts into the classroom. Mushrooms are fun, scary, deadly, delicious, and above all fascinatingly unique. Our ectomycorrhizal flora demonstrate plant affinities, succession, and biodiversity. Our decomposers recycle everything from plastic to corpses. Fungi can be parasitic or commensal, but most are symbiotic and beneficial. Eating mushrooms promote health and vigor and can cure cancer. Find out about these amazing organisms in a 3.5-hour intensive with Rick Van de Poll (aka Dr. V). Bring boots, hand lens, and collecting bag, box or basket. Be prepared to have fun! Common field guides to bring: Audubon's Guide to Mushrooms, Baron's Mushrooms of the Northeast

**Directions:** Carpool from Church Landing. Meet on the porch-front of Church Landing at 8:30 AM.

### **FT3. Lake Exploration on Squam Lake, Little Squam Lake**

**Location:** Squam Lake/Little Squam Lake, Holderness, NH

**Content:** LS, EV; **Time Frame:** 10:00 am—3:00 pm; **Level:** M/H

**Presenter:** Staff, Squam Lakes Natural Science Center

**Description:** Join us on our floating classroom to study Squam Lake. Use hands – on measurements of pH, dissolved oxygen, water hardness, clarity and temperature to assess the lake's health. Collect lake sediment and a plankton sample to be viewed under our bio-scope in the lab. Afterwards take a guided tour along SLNSC's live animal exhibit trail or explore on your own. Participants will need a lunch and should dress appropriately for the weather – it can get cold out on the lake at this time of year.

**Directions:** FROM I-93 Take exit 24—Ashland. Bear right off the exit on Routes 3 and 25 south into Ashland. Go through Ashland and continue for four miles into Holderness. Just past the cemetery, turn left on Route 113. The driveway to the Center is on the left 400 yards from the corner. FROM THE SEACOAST Take the Spaulding Turnpike to the Alton and Lake Winnepesaukee exit. Take Route 11 West and follow it through Alton Bay and into Gilford. Turn right on Route 11B at B. Mae Denny's Resort. Follow it to Weirs Beach. FROM WEIRS BEACH Follow the lights at the corner by Mills Falls Marketplace where Route 3 joins Route 25. Holderness just past the library, turn right onto Route 113. The driveway to the Center is on the left 400 yards from the corner.

### **FT4. The Active Rock Zone**

**Location:** Squam Lakes Natural Science Center

**Content:** ES; **Time Frame:** 10:00 am—2:00 pm; **Level:** E/M

**Presenter:** Staff, Squam Lakes Natural Science Center

**Description:** NH is a state of rocks, stones and "mountain bones" which has been shaped many times by geologic forces. Use hands on activities and exploration to discover different types of rocks found in New Hampshire, the rock cycle that formed them and the effects of ice and water on the current landscape. Afterwards investigate SLNSC's new geology exhibit along and other exhibits along our live animal exhibit trail with a guide or on your own. Participants will be walking / hiking on the Mt Fayal trail with a 500 ft elevation gain over 1 mile. Wear sturdy shoes, bring a bag lunch and water.

**Directions:** FROM I-93 Take exit 24—Ashland. Bear right off the exit on Routes 3 and 25 south into Ashland. Go through Ashland and continue for four miles into Holderness. Just past the cemetery, turn left on Route 113. The driveway to the Center is on the left 400 yards from the corner. FROM THE SEACOAST Take the Spaulding Turnpike to the Alton and Lake Winnepesaukee exit. Take Route 11 West and follow it through Alton Bay and into Gilford. Turn right on Route 11B at B. Mae Denny's Resort. Follow it to Weirs Beach. FROM WEIRS BEACH Follow the lights at the corner by Mills Falls Marketplace where Route 3 joins Route 25. Holderness just past the library, turn right onto Route 113. The driveway to the Center is on the left 400 yards from the corner.

### **FT5. The Hubbard Brook Experimental Forest**

**Location:** Hubbard Brook Experimental Forest, Woodstock, NH

**Content:** LS, ES, EV; **Time Frame:** Meet at 10:00 AM at Hubbard Brook. 10:00 am – 2:30 pm; **Level:** M/H

**Presenter:** Geoff Wilson, Hubbard Brook Research Foundation; **Co-Presenter:** Jackie Wilson, Hubbard Brook Research Foundation

**Description:** Come visit the Hubbard Brook Experimental Forest, a 3,160-hectare forested valley in Woodstock, New Hampshire! Originally set aside by the United States Forest Service in 1955 for hydrologic research, the research focus at Hubbard Brook has since expanded and resulted in one of the longest and most extensive continuous databases on the hydrology, biology, geology, and chemistry of natural ecosystems in the world. These collaborative data are the keystone of the Hubbard Brook Ecosystem Study, and have provided invaluable insight into how ecosystems respond to disturbances such as air pollution, climate change, forest disturbance, and forest management practices. Participants will get a glimpse into ecosystem research as we visit experimental watersheds and atmospheric sampling sites. We will discuss how to relate the value of long-term data collection to students and provide teachers with lessons developed by educators who participated in our summer Research Experience for Teachers program. In addition, participants will be introduced to a variety of lessons from our acid rain and migratory bird teaching guides to bring back to the class-

room. Sturdy walking shoes, rain gear, bag lunch and beverage. This field trip will run even if it rains.

**Directions:** From Interstate Route 93: Get off at exit 30, turn right off the ramp onto Route 3 south. Travel 1.1 miles to Mirror Lake Road on the right. There is a small café called the “Lily Pad” at this turn, and you will see a small brown sign for Hubbard Brook. Proceed up Mirror Lake Road to the end. The USFS building is the reddish-brown building on the hill. Parking is behind the building at the top of the hill.

#### **FT6. Evolving technology in Small Scale Sustainable New Hampshire Agriculture, Moulton Farms**

**Location:** Moulton Farms, Meredith, NH

**Content:** ES, EV, T; **Time Frame:** 12:00 noon - 2:30 pm (Meet at Moulton Farms at 12:00 noon) ; **Level:** ALL

**Presenter:** John Moulton, Manager of Meredith Farm Growers

**Description:** You will see an extended season growing tunnel, numerous soil and water conservation practices in place. Locally designed greenhouses will be toured. . A hands-on soil nutrient management program will be discussed. Durable and safe footwear is recommended.

**Directions:** Exit 23 off of route 93-east to Meredith-rt 3 north approximate 1 mile, right onto route 25, 2.1 m to Quarry Rd, right on Quarry Rd.

#### **FT7. Earthcaching 101**

**Location:** Meredith Community Forest, Meredith Community Center

**Content:** EV, T; **Time Frame:** 1/2 day (3-4 hrs) 11:00 am; **Level:** M/H

**Presenter:** Lara Bryant, Keene State College, Department of Geography; **Co-Presenter:** Chris Brehme, Keene State College, Department of Geography

**Description:** Earthcaching is a natural adaptation of Geocaching where the objective is to use technology to locate natural features of interest. Once the location is found, learning takes place in the natural environment. GPS units will be provided by the New Hampshire Geographic Alliance. Participants should bring a field notebook and be dressed appropriately for hiking. Participants will learn how to create their own Earthcache for their classroom.

**Directions:** Meredith Community Forest, Meredith Community Center, 1 Circle Drive, Meredith, New Hampshire

#### **FT8. What do GIS, GPS and Trout Have in Common?**

**Location:** Various sites around Lake Winnepesaukee.

**Content:** LS, ES, PS, EV, T, I; **Time Frame:** whole day (6-7 hrs); **Level:** M/H

**Presenter:** Ina Ahern; **Co-Presenter:** Judy Tumosa, NH Fish and Game

**Description:** Take a journey through your watershed and bring it into the classroom. In this combination workshop/field trip, you'll use a variety of technological tools to investigate water quality and assess the fisheries habitat of Lake Winnepesaukee. Begin your study using GIS maps to select specific sites to visit, then head into the field and use GPS units to locate the spots, after that gather water quality data using meters. Return to the classroom to analyze the data and learn how to share it with other schools and local community partners. Find out how to access these tools and put them to practical use with your students to determine the health of your own local aquatic ecosystem. Participants should bring a USB drive to take home their projects and data. Attendance limited to 20 participants (based on number of available computers).

**Directions:** Field trip will meet at the conference center at Church Landing.

#### **FT9. Cardigan Mountain Climb**

**Location:** AMC Mount Cardigan Lodge, Shem Valley Road, Alexandria NH 03222

**Content:** LS, ES, EV; **Time Frame:** 1/2 day (3-4 hrs); **Level:** M/H

**Presenter:** Rick Glatz, Merrimack Middle School

**Description:** Come learn about the biomes and some mountain geology of New Hampshire as we travel up this beautiful mountain. Help find the unique Cardigan pluton pegmatite. This mountain is a favorite educational climb for school groups. Activities for use with school groups will be shared. AMC staff will also give us a brief history of the area. Hiking boots are a must. Be prepared for moderately rigorous climbing.

**Directions:** Directions. 1) Take Exit 23 off I-93 N 2) At the end of the exit ramp take a left on to Rte 104 3) Take 104 into Bristol, NH 4) Follow 104 until you see Rte 3A going North 5) Follow Rte 3A out of Bristol 6) In about 2 miles you will come to a blinking yellow light. This is West Shore Road. Take a left. Follow this road (do not take the right for Wellington Beach State Park). There are a number of turns in the road but follow the main road and this will lead you in about 3 miles to Alexandria, NH. 7) Follow the road as it curves right around the green in the center of town. As you start leaving the town, take the first road on your right. This is Mount Cardigan Road. There are brown AMC signs also directing you this way. You are approximately 5.5 miles from the lodge. The road turns to dirt the last 1.1 miles. 8) The road ends at the AMC lodge. We will meet out in front.

## NHSTA FALL CONFERENCE SCHEDULE

Monday, October 24, 2011

7:00 - 2:30 Exhibits

Exhibits and pastries/beverages will be available in

7:00-8:00 **Registration** Chase House

8:00-9:00 **Session I Workshops**

9:15-10:15 **Session II Workshops**

10:15-10:45 **Exhibits/Coffee Break**

11:00-12:00 **Session III Workshops**

12:00-12:30 **Exhibits/Coffee Break**

12:30-1:30 **Session IV Workshops**

1:30 – 2:30 **Luncheon**

**DOOR PRIZES:** BEFORE LEAVING CHECK THE LOBBY AREA FOR ANY DOOR PRIZES YOU MAY HAVE WON. ALL PRIZES WILL BE PLACES ON TABLES IN LOBBY AREA. NAME TAG MUST BE SHOWN TO RECEIVE PRIZE.

### Session 1, Workshops: 8:00 AM – 9:00 AM

#### 1. FREE Research-based NSTA e-Professional Development Opportunities for New Hampshire Educators.

**Building:** Church Landing **Room:** Cathedral

**Content:** LS, ES, PS, T, A, Professional Development Design; **Format:** HO, DI, DE; **Level:** ALL

**Presenter:** Edward Rock, National Science teachers Association, **Co-Presenter:** Linda Bates, NHSTA and NSTA

This workshop introduces participants to the research supporting the NSTA online Learning Center. It will also provide an overview of the various teacher resources and tools and accountability/management tools for New Hampshire educators and administrators, found in the NSTA Learning Center. NSTA's Learning Center (<http://learningcenter.nsta.org>) provides teachers with thousands of standards-aligned, content-building learning resources (e.g., SciPacks, Science Objects, SciGuides) and tools available 24/7. Teachers are able to personalize their portfolio, build their own library of resources and lesson plans, share them with colleagues and use it for years to come. Accountability tools assist instructors and project directors to track teacher progress. This workshop is relevant to NHSTA members as the resource provides high-quality professional development (PD) opportunities for pre-service and in-service teachers. Science and STEM teacher educators have limited resources for all the professional development opportunities they require. Many pre-service teachers have limited time they can devote to increasing their own content knowledge in science. Too many PD experiences are 'one-size-fits-all'. Convenient, customizable, accessible on-line PD is essential. Equally important is the scarcity of time for pre-service teachers. Having a PD program that teachers can work on to increase their content knowledge from anywhere - anytime they can connect to the internet - after school, at the coffee shop, during planning period, at the beach, or home - is essential. Anyone who provides science and STEM teacher education or is responsible to identify and locate High-quality PD resources will take away a unique set of resources and tools for building science and STEM content knowledge. Science and STEM educators including those in professional development, those who create professional development curriculum/training guides, professional development providers, school administrators wanting to secure excellent resources for their teachers, and university faculty will all be served by participating in this session.

#### 2. Bio-monitoring of Macro-invertebrates to Determining River Water Quality

**Building:** Chase House **Room:** Steamboat

**Content:** LS, EV; **Format:** DI; **Level:** E/M

**Presenter:** Justin Chapman, Sandwich Central School

In this workshop you will learn how students can collect and inventory macroinvertebrates based on their tolerance to pollution in order to help determine river water quality. I will describe the process by which a biotic score is calculated and how this information can be helpful in determining water quality. I will also detail the partnership that enables us to assist the Green Mountain Conservation Group with this project, and how we share the data with NH DES as part of their Volunteer Biological Assessment Program.

#### 3. Cultivating Connections: Teaching Science Using School Gardens

**Building:** Chase House **Room:** Fireside

**Content:** LS, PS, EV, health & nutrition; **Format:** DI, DE, Case-studies & examples; **Level:** E/M

**Presenter:** Ruth Smith, NH Agriculture in the Classroom

School and youth gardens provide fertile ground for teaching science and many other subjects. From Life Science and ecology, to soil science, students can gain and apply skills and knowledge in the garden throughout the school year. Growing vegetables is also a way for kids to learn about healthy eating and environmental stewardship. Ruth will share some case studies of school and youth gardens and address some of the common challenges of developing and maintaining school gardens.

#### **4. Moodle - Building an Online Classroom**

**Building:** Mills Falls      **Room:** Cummings

**Content:** LS, ES, PS, EV, T, lab safety, A, Lit; **Format:** DE; **Level:** E/M

**Presenter:** Margaret Goss, Timberlane Middle School

Educators will learn to build an online classroom using the Moodle program. The online classroom set up will include how to create online As, interactive activities, resources, videos, forums, and web links to other sites. An online classroom will help teachers differentiate instruction, support the integration of T and provide a valuable online resource for students.

#### **5. Determining Dinosaur Speed**

**Building:** Church Landing      **Room:** Ballot

**Content:** ES, PS; **Format:** HO; **Level:** H

**Presenter:** Sarah Clemmitt, Gorham Middle High School

The speed of a track-making dinosaur is determined using the relationship proposed by McNeill Alexander (1976) that all upright tetrapods move in the same fashion regardless of size. Although the speed of a dinosaur cannot be directly measured, the tracks can. Using the empirical relationship between footprint length, leg length, stride length and speed, students calculate how fast a dinosaur was traveling when it made the tracks. Students illustrate this concept by making trackways using socks soaked in water based paint on a 10 m long sheet of paper. I use this activity at the end of the unit on speed and velocity in 9th grade PS. It is a fun way to look at motion.

#### **6. Genetics gets personal: Teaching the ethical, legal and social issues in personal genetics.**

**Building:** Church Landing      **Room:** Oval

**Content:** LS; **Format:** D, L; **Level:** H

**Presenter:** Lauren Tomaselli, Harvard Medical School - Personal Genetics Education Project

How might personal genetics transform our lives? High school students belong to the first generation that will have easy and inexpensive access to information about their DNA. Presently, people can purchase tests online that tell them their risk of developing certain diseases, whether they carry a genetic variation that could be passed on to their children, and information about their ancestry. What are the possible benefits and risks of knowing more about your genetic makeup? And who should decide how much information you can learn? We will discuss the rapidly emerging field of personal genetics, and strategies for including this subject in the science or health classroom. Our focus will be the ethical, legal and social issues, such as privacy, family considerations, and DNA and crime. Curricular materials and reading lists will be shared. Lesson plans to be provided include: genetics and athletics, genetic testing of embryos, the impact of DNA information on people's healthcare choices and personal relationships, and the use of DNA in solving crime.

#### **7. Where Raptors and Research Meet**

**Building:** Church Landing      **Room:** Garwood

**Content:** LS, EV; **Format:** L, DE, Includes a live raptor; **Level:** M/H

**Presenter:** Dave Erler, Squam Lake Natural Science Center

Birds of prey provide an exciting way for students to become engaged in learning about environmental challenges. Experience Hlights of three different Squam Lakes Natural Science Center programs which can help you "grab" your students interest including a yearly hawk watch count conducted with 4th graders at Interlake's Elementary School, live raptor programs offered at the Science Center and the new Osprey project program which uses GPS Technology and the internet to track osprey on their yearly migration from New England to South America.

#### **8. Using NOAA's nowCOAST Web Map Viewer to Display Real-Time Weather and Ocean Info in the Classroom**

**Building:** Church Landing      **Room:** Laker

**Content:** ES; **Format:** HO; **Level:** M/H

**Presenter:** John G.W. Kelley, NOAA/National Ocean

NowCOAST (<http://nowcoast.noaa.gov>) is a GIS-based Web mapping portal provides teachers and students with an integrated, interactive map viewer to real-time coastal environmental observations and NOAA forecasts for any region in the coastal United States. NowCOAST provides users with displays of the latest surface weather and ocean observations, satellite cloud imagery, weather radar reflectivity mosaic, surface meteorological and oceanographic analyses, oceanographic model nowcasts, gridded weather forecasts, short-duration weather warnings, and tropical cyclone track forecasts. The portal also supplies geo-referenced hyperlinks to over ten thousands web sites providing current observations from meteorological, oceanographic, river, water and air quality observing networks and NOAA forecast products from the top of the watershed to the high seas.

#### **9. The Science of Scuba Diving**

**Building:** Mills Falls      **Room:** Lang

**Content:** LS, ES, PS; **Format:** DI, DE; **Level:** M/H

**Presenter:** Jay Godfrey, Chemistry teacher (retired), certified SCUBA diver

Looking for “Practical Examples” to use in your Physics, Chemistry or Biology curriculum? SCUBA might be just what you need. In addition to a discussion and viewing of the equipment, you will be provided examples that you can incorporate into your units on gas laws, buoyancy, pressure, solubility of gases, physiology, heat flow and more. For this workshop, you will need a calculator; but not a swim suit.

### **Session 2, Workshops: 9:15 AM - 10:15 AM**

#### **10. Creating Meaningful Rubrics that Assess Student Learning**

**Building:** Church Landing      **Room:** Laker

**Content:** A; **Format:** HO, DI, collaborative DI, project based; **Level:** ALL

**Presenter:** Stan Freeda, NH Department of Education

Rubrics have been in use for many years now. But just how effective are they in helping both you and your students understand what was learned. In order to be meaningful, for both teachers and students, rubrics have to be more than just scoring tools that list criteria for a piece of work that will count for the grade. They have to be developed in such a way that they measure learning appropriately, and that they are independent of any subjectivity the scorer may bring. In this workshop, you will explore the components of rubrics and how they are used to develop meaningful assessments. You will consider both summative and formative rubrics. You will collaborate with other teachers to clearly identify the goals and objectives of a student product and be able to assess those products for learning. A backward design approach will be used to develop a process you can use to develop meaningful rubrics that engage students in their assessment process. If you have a wireless laptop, it may be useful, but it is not necessary for the workshop.

#### **11. Misconceptions in Science**

**Building:** Mills Falls      **Room:** Lang

**Content:** LS, ES, PS, EV; **Format:** DI; **Level:** ALL

**Presenter:** Jay Godfrey, Retired NH Science Teacher

Fish use the oxygen in the H<sub>2</sub>O molecule to breathe. Electricity is the flow of positive charge. Vacuums suck. Astronauts are weightless because there is no gravity up there. How and why do these ideas get into students' heads and, more importantly, how do we replace them with the correct scientific explanation? In this workshop we will work together to come up with strategies to deal with this common problem. Audience participation is required, so bring a list of your favorite scientific misconceptions.

#### **12. Water 101**

**Building:** Church Landing      **Room:** Garwood

**Content:** LS, EV, Science for Elementary age; **Format:** HO, Lecture, DE; **Level:** E/M

**Presenter:** Staff, Squam Lake Natural Science Center

Water is essential to every living thing but is something humans often take for granted. Discover how all water is not necessarily the same by observing and conducting some basic water tests (pH, dissolved oxygen, etc) on samples from different Lakes Regions locations. Conduct additional observations at the nearby lakeside and consider how a long term data set can be useful for students in identifying natural cycles and changing trends in water quality.

#### **13. 2011 The Year of the Solar System: From Fire to Ice: Exploring Mercury to Pluto**

**Building:** Church Landing      **Room:** Oval

**Content:** ES, T; **Format:** HO, DI, DE; **Level:** E/M

**Presenter:** Sally Jean Jensen, Waterville Valley Academy

Sally Jensen, MESSENGER and New Horizons Educator Fellow, will lead participants in exploring the current, hot off the press, high resolution data images, using the Mosaic postcards with an online interactive bulletin board. The resources from the New Horizons Mission which is on its way to Pluto will also be examined. Participants will receive the first set of Mosaic postcards, two activity based posters and an interdisciplinary curricula CD's.

#### **14. A Microarray Simulation to Study Gene Expression.**

**Building:** Chase House      **Room:** Steamboat

**Content:** LS, BioTech; **Format:** HO; **Level:** H

**Presenter:** Scott Betournay, St. Paul's School

The DNA gene chip, or microarray, is a tool that allows scientists to quickly study the expression patterns of thousands of genes in a cell. The first portion of the workshop will examine how microarray experiments are conducted. We will discuss how scientists study gene expression by detecting cellular mRNA from multiple cell types and/or environmental conditions. In the second part of the workshop, we will conduct a wet-lab activity that simulates a microarray experiment. Participants will screen the genes that are expressed in fictitious tumor cells and non-cancerous tissue. The workshop will conclude with a few words on how the study of gene expression will continue to produce discoveries, and is poised for future research. This workshop is drawn from the curriculum of a molecular biology class that is taught to H school juniors. Participants should have a background in biology but need no special tech-

nical skills; all materials for the investigation will be provided.

### **15. Putting Google Mapping to Work for You in the Classroom**

**Building:** Church Landing      **Room:** Cathedral

**Content:** T, All; **Format:** L; **Level:** All

**Presenter:** Shane Bradt, University of New Hampshire

Computer-based mapping is evolving to become more powerful, interactive, easy to use, and more often than not, cost-free. Google is leading the charge in this new age of mapping, providing wonderful technologies such as Google Maps, Google Earth and SketchUp, all of which offer free ways to create and share interactive maps. This session will cover the possibilities and limitations of this Google's approach to mapping, as well as, provide suggestions and resources for using these applications to bring mapping into the classroom.

### **16. NHSTEM - An adventure for the mind, though robotics**

**Building:** Mills Falls      **Room:** Cummings

**Content:** PS, T; **Format:** HO; **Level:** M/H

**Presenter:** David Kelly, 2011 Christa McAuliffe Sabbatical Recipient

This "hands-on" workshop will show participants how fun and easy it is to build and program VEX robots. After playing with the robots, information will be provided on how to get your students involved in robotics competitions so they can learn firsthand that the laws of nature cannot be broken.

### **17. Migratory Birds: Data-based lessons for your students!**

**Building:** Church Landing      **Room:** Ballot

**Content:** LS, EV, M and H school math; **Format:** Lecture, DE; **Level:** M/H

**Presenter:** Jackie Wilson, Hubbard Brook Research Foundation

Hubbard Brook scientists have been studying birds continuously at the Hubbard Brook Experimental Forest since 1969, compiling one of the most detailed studies of Neotropical migratory birds in North America. This represents two significant resources for educators: first, a large body of knowledge detailing the population ecology and life histories of many migratory bird species, and second, a variety of examples of how researchers ask questions and the methods used to pursue the answers. With increased curricular emphasis on inquiry in today's classroom, we've developed lessons that combine information about local migratory bird species with the methods scientists use to study them. This effort has resulted in a set of Migratory Bird Science and Math Lessons, which includes nine science and math lessons for grades 7 through 12; slide shows that explore Neotropical migratory birds and the methods used to study them; and additional resources for teachers, students, and parents. It is our hope that this resource will generate interest in ecology as well as support students' development in science inquiry skills. In addition to receiving an overview of and access to the lessons, participants in this workshop will learn what the past 40+ years of avian research at Hubbard Brook tells us about bird ecology.

### **18. Bargain Demos**

**Building:** Chase House      **Room:** Fireside

**Content:** PS; **Format:** DE; **Level:** M/H

**Presenter:** Bette A. Bridges, LSI

Excite your classes with these cheap, simple, and easy to set-up and take-down demos using everyday materials.

## **Session 3: 11:00 AM - 12:00 Noon**

### **19. "See like a Bird or a Bee" and other Image Processing Tricks with your computer's camera**

**Building:** Church Landing      **Room:** Water

**Content:** T, All Frameworks; **Format:** DE; **Level:** M/H

**Presenter:** Bill Church, Littleton High School; **Co-Presenter:** Kevin Lavigne, Hanover High School

Most laptops are shipped with a webcam built into the screen. Traditionally used for video conferencing type activities and games, these cameras are an onboard real-time science sensor that can be used for several middle and high school science projects. This session will demonstrate several classroom projects that are currently in development and focus on one that participants will be able to take with them. The free activity will utilize an image processing application that will compare the vision abilities of three eyes – birds, bees, and humans. Biology, Chemistry, and Physics activities will be provided to participants to test drive. By the end of the session, participants will have learned about image processing, how to use their webcam as a science sensor, and how to implement vision tools in middle through high school science classrooms.

**20. Connected teaching, connected learning: Using social media tools to communicate, collaborate, and create in the classroom.**

**Building:** Church Landing      **Room:** Cathedral

**Content:** T, Lit; **Format:** Lecture; **Level:** ALL

**Presenter:** Cathy Brophy, SAU 56 and NHSTE

Explore a variety of web based collaborative tools that will help connect your students to the world around them. See how applications such as Wikispaces, Voicethread, Edublogs, Twitter, Wallwisher, and Diigo can be used to create engaging, authentic learning environments where inquiry can thrive. This presentation will introduce participants to a wide variety of free, web based tools that can be used in a one computer classroom as well as in a 1:1 environment.

**21. Using Inquiry Strategies to Investigate Magnetism and Electricity.**

**Building:** Church Landing      **Room:** Ballot

**Content:** PS, Lit; **Format:** Commercial Workshop, HO; **Level:** E

**Presenter:** Steve Murray, Delta Education

Participants will experience activities from the Full Option Science System (FOSS) that allow students to understand and explain the world around them. Inquiry activities from the Magnetism and Electricity Module will be used to highlight correlations to the New Hampshire Science Standards. Participants will receive a packet of materials including literature connections.

**22. Connecting Classrooms to the Coast**

**Building:** Church Landing      **Room:** Laker

**Content:** LS, lit; **Format:** HO; **Level:** E/M

**Presenter:** Nicole Scola, New England Aquarium

Learn about the different habitats, adaptations, structures and functions of our local coastal marine animals. Participate in inquiry based hands on activities that you can use in your classroom.

**23. Science in the Snow**

**Building:** Chase House      **Room:** Steamboat

**Content:** ES; **Format:** DI, DE; **Level:** E/M

**Presenter:** Marsha Rich, American Meteorological Society

Get ready for winter with an exploration of science activities that can be done in and with snow. These physical and earth science activities offer opportunities to observe, analyze and interpret data, using a local and (hopefully!) abundant resource.

**24. Bringing NH Science Olympiad to YOUR school!**

**Building:** Mills Falls      **Room:** Lang

**Content:** LS, ES, PS, EV, T, S, Lit, STEM; **Format:** HO, DI; **Level:** H

**Presenter:** Gina Bergskaug, NH Science Olympiad, **Co-Presenter:** John Boucher, NH Science Olympiad

Science Olympiad is a national non-profit organization dedicated to improving the quality of K-12 science education, increasing male, female and minority interest in science, creating a technologically-literate workforce and providing recognition for outstanding achievement by both students and teachers. These goals are achieved by participating in Science Olympiad tournaments and non-competitive events, incorporating Science Olympiad into classroom curriculum and attending teacher training institutes. How can you make this possible in your school? Come to this hands-on workshop and see for yourself how much fun this is!

**25. Chemistry teachers unite!**

**Building:** Chase House      **Room:** Fireside

**Content:** Chemistry, PS; **Format:** DI; **Level:** H

**Presenter:** Sally Jean, Keene State College

There is never time to network with other Chemistry teachers. Come to this workshop and discuss issues that you are passionate about, share ideas, professional development needs. Let's start a Professional Chemistry Learning Community!

**26. Introduction to Beginner Beekeeping and Products from the Hive by the Pemi-Baker Beekeepers' Association**

**Building:** Church Landing      **Room:** Garwood

**Content:** LS; **Format:** DI, L, P, DE; **Level:** E/M

**Presenter:** Gerard Godville, President, Pemi-Baker Beekeepers Association, Dave Boynton, Secretary, PBBA and Mike Burt, PBBA. Please come and listen to our presentation on the Introduction to Beginning Beekeeping. The honeybees are one of nature's most important insects for the survival of our food production as we know it. We will be speaking on the history of bees in the United States; what tools and equipment are necessary to operate the apiary; the extraction process of honey; and products from the hive. **Gerard Godville**, President of the Pemi-Baker Beekeepers Assn. (PBBA) and the *2011 Beekeeper of the Year* recipient and **David Boynton**, Secretary of the PBBA have been keeping bees for eight years. **Mike Burt** is an active member of the PBBA and

has been keeping bees for three years. The speakers are hobbyists at beekeeping and have been giving presentations for the past four years to local schools in conjunction with the Agriculture in the Classroom organization to promote the education on honeybees. They have given demonstrations at the Grafton and Belknap County School to Farm events for several years. They have also enjoyed presenting at other community events such as Old Home Days, NH Audubon Society, Garden Clubs, Girl Scout Troops and Recreation programs.

### **27. The Carbon Cycle, A Building Block for Climate**

**Building:** Mills Falls      **Room:** Cummings

**Content:** LS, ES, EV; **Format:** HO; **Level:** M/H

**Presenter:** Sarah Silverberg, University of New Hampshire, **Co-Presenter:** Haley Wicklen, University of New Hampshire

How does carbon move from place to place? What are pools and fluxes of carbon? What is the relationship between carbon and climate? The GLOBE Carbon Cycle project has developed a set of materials that help students answer these questions. At this workshop participants will experience HO cycling activities, discuss the relationship between carbon and climate, and watch a demonstration of a student oriented Global Carbon Cycle computer model. They will also learn about the other GCC materials and upcoming workshops that focus on the terrestrial components of the carbon cycle (plant experiments, field measurements, and biomass and carbon modeling).

### **28. Science Education, What For? Answered by the Aesthetic Realism Teaching Method**

**Building:** Church Landing      **Room:** Oval

**Content:** LS; **Format:** DE, Interactive Lessons with DE; **Level:** M/H

**Presenter:** Rosemary Plumstead, Retired Educator, **Co-Presenter:** Sally Ross, Retired Educator

Have you heard students say, "Why do we have to learn this stuff?" Have you and your students felt frustrated that education has been reduced to teaching to the test? How can you meet standards and encourage students to feel excitement and wonder about science? Using brief, diverse biology lessons, the presenters will demonstrate how through this method, students really like science and see new relations between it and their lives.

## **Session 4: 12:30 PM - 1:30 PM**

### **29.**

**Building:** Church Landing      **Room:** Laker

**Content:** PS; **Format:** Level: ALL

**Presenter:** Atlas Fireworks

### **30. Rocks From Space Everything You Want to Know About Meteorites.**

**Building:** Chase House      **Room:** Fireside

**Content:** ES, PS; **Format:** HO, Lecture; **Level:** ALL

**Presenter:** Robert A. Veilleux, McAuliffe Shepard Discovery Center

Have you ever wondered about the thousands of meteorites that strike Earth each and every day? Have you ever seen any unusual rocks and wondered if they could be rocks from space? Perhaps you have a few unusual rocks and wonder if they could be meteorites. I will explain all about rocks from space and let you see and hold numerous examples of these our oldest visitors in the solar system. See and hold some of the 300 plus rocks from space that I have collected over the past thirty years. I will even demonstrate how to identify and test for meteorites and "meteorwrongs". No authenticated meteorite has ever been discovered in New Hampshire; perhaps you could be the first to do so. Come and learn all about our oldest rocks in the solar system.

### **31. Teaching Science Using Web 2.0 tools**

**Building:** Church Landing      **Room:** Ballot

**Content:** T; **Format:** HO, DI, Collaborative DI, project based; **Level:** ALL

**Presenter:** Stan Freeda, NH Department of Education

Web 2.0, the read/write web, offers a variety of tools which are freely available online and can be used to engage students in 21st Century learning. Teachers can use these resources to create engaging lessons that challenge their students and make their lessons interactive and available at school, at home, or anywhere that has internet access. You will receive a brief introduction to the variety of free Web 2.0 tools and resources freely available on the web. Then use inquiry based activities to work collaboratively to explore and discuss potential uses of these tools to enhance your teaching. Each group will begin to develop lesson plans tailored to your own content and grade level that incorporates one of the tools into your instructional activities to engage students in learning science. This workshop is designed to be interactive and collaborative. Bring your questions and your curiosity with you. You will get access to a resource site where you can continue to share your ideas and resources with the group online, if you want. If you have a wireless laptop, you will be able to use it, but it is not necessary for the workshop.

### **32. Squam Lakes Natural Science Center Sampler**

**Building:** Church Landing      **Room:** Garwood

**Content:** LS, ES, Science for Elementary age; **Format:** HO, Lecture, DE, Includes a live animal; **Level:** E/M

**Presenter:** Staff, Squam Lake Natural Science Center

The Squam Lakes Natural Science Center offers a wide range of programs at your school or at our site in Holderness, NH. Experience a sampling of SLNSC programs by learning from a live wild animal, doing mathematical calculations that compare an animal's food consumption to that of a person, measuring non-living variables that affect natural communities and identifying wetland invertebrates from a local source. Our interactive programs along with their designed support materials can bring your curriculum alive.

### **33. SELU Today, Environmental Literacy Tomorrow**

**Building:** Mills Falls      **Room:** Lang

**Content:** LS, ES, EV, A; **Format:** HO, DI, Lecture; **Level:** E/M

**Presenter:** Meg K Edstrom, Ferry Beach Ecology School

SELU's (Science and Ecology: Live and Unplugged!) sequential, place-based model builds upon cumulative, field-based instruction in school settings, residential EE centers, and ecosystem exploration. Workshop will address SELU's inception and programmatic elements, discuss A strategies and techniques, and include hands-on activities and application.

### **34. Scientific Method with a Geographic Twist**

**Building:** Church Landing      **Room:** Cathedral

**Content:** T; **Format:** Handouts available. HO, DE Participants can bring their own laptops ; **Level:** E/M

**Presenter:** Lara Bryant, Keene State College, Department of Geography

Internet Geographic Information Systems (IGIS) are free, easily accessible and address a variety of topics: from mapping plate boundaries and volcanoes to climate and habitat. Through the use of technology, and geographic inquiry students will learn how to distinguish spatial patterns and suggest possible correlations for investigation.

### **35. Basic Understanding of How The NECAP Science Assessment is Reviewed.**

**Building:** Church Landing      **Room:** Oval

**Content:** ES; **Format:** DI, Lecture, Overview; **Level:** H

**Presenter:** Thomas Morin, PSU

This workshop will discuss on questions are selected for the Science/Earth-Space portion of the NECAP 11th grade assessments.

### **36. Locally Grown Lake Stewards: Protecting your local lakes and engaging local youth**

**Building:** Mills Falls      **Room:** Cummings

**Content:** EV, Lit; **Format:** DI; **Level:** M/H

**Presenter:** Andrea LaMoreaux, NH Lakes Association, **Co-Presenter:** Beverly Nelson, retired teacher

Come learn about the NH Lakes Summer Youth Employment Program for Lake Protection. This program is available for NH youth and combines the Lake Host Program with the Lake Conservation Corps Program. Learning activities helping students become good stewards of our lakes will be shared that are useful in all class room settings. Information will also be shared for helping youth become involved.

### **37. Empower Students with Award-Winning Climate Education Presentation By the Alliance for Climate Education (ACE).**

**Building:** Chase House      **Room:** Steamboat

**Content:** LS, ES, PS, EV; **Format:** L; **Level:** M/H

**Presenter:** Rouwenna Lamm, Alliance for Climate Education, **Co-Presenter:** Brian Stilwell, Alliance for Climate Education

Described by students and teachers as "the best presentation ever," ACE's award-winning, no-cost, dynamic multimedia presentation educates students about climate change science and inspires them to take action. ACE educators build on the presentation to activate students by providing free resources, such as leadership trainings and grants, to support a school Action Team. Come see the presentation we've given to over 830,000 high school students across the nation (including more than 115,000 in New England). Learn how we move students from apathy to excitement and empower them to lead! Book a presentation for your school

## ANNOUNCEMENTS

- This conference will be held at The Inns & Spa at Mill Falls (Physical Address): 312 Daniel Webster Highway, Meredith, NH 03253; Telephone: 800-622-6455.
- **Directions: The Inns and Spa at Mill Falls.**
  - From the North or South:** take I-93 to exit 23. Follow 104 East to Route 3 North, turn left at the light. The Inns are 1/2 mile down at the Junction of Routes 3 and 25.
  - From North Conway:** Route 16 South to Route 25 (Ossipee). Take a right onto Route 25. Follow Route 25 through Tamworth, Moultonboro and Center Harbor to Route 3. The Inns are at the junction of Routes 3 and 25.
  - From the Seacoast of New Hampshire:** Take the Spaulding Turnpike North. This turns into Route 16. Take the Lake Winnepesaukee (Route 11) exit. Follow to the Alton Bay traffic circle, and remain on Route 11 after going around the circle halfway. Stay on Route 11 to Gilford and go right on 11B, continue straight to the stop sign in Weirs Beach, and go straight onto Route 3 into Meredith. The Inns are at the junction of Routes 3 and 25. Approximately 1.25 hours from Portsmouth.
  - From the East:** Take Route 25 West. Route 25 will merge with Route 16. At the Yankee Smokehouse, turn left to stay on Route 25. Route 25 will take you right into Meredith. The Inns are at the Junction of Route 25 and 3.
- Registration and exhibits will be held in the Church Landing Building, downstairs.
- Workshops will be held in: Church Landing Venue (Laker Room, Garwood Room, Cathedral Suite, Oval Room, Ballot Room); Chase House Venue (Steamboat Room, Fireside Room); Mill Falls Venue (Cummings Room, Lang Room).
- Our special thanks go to this year's exhibitors. Their fees help keep our registration costs down. We urge you to take the time to see what's new in science texts, programs, and equipment. Stop by and chat with the various representatives.
- NHSTA is not responsible for cancellations by speakers.
- Certificates of attendance will be distributed. If you need verification of hours earned in specific areas, ask the presenters to endorse your certificate.
- **You can register on-line and pay with a credit card, purchase order or check at: [www.nhsta.net](http://www.nhsta.net)**
- **Please return the registration form on or before October 16, 2011.** We will provide for a limited number of late registrants. Call 888-846-4782 or email <nhsta@together.net> if you have questions or to check on space availability.
- **Free WiFi is available throughout the entire conference area for all conference participants!!**
- Check the NHSTA web site for updates on the conference: [www.NHSTA.net](http://www.NHSTA.net)

**Important NOTE: Make sure your membership is up to date. To get the member rate, you must have paid your NHSTA dues. If your membership needs to be renewed (or – you need to join), use the membership form below and mail it in with the conference registration (you may use the “Member Fee.”)**

	Early Bird Registration (postmarked by 9/15/11)		Pre-Registration (postmarked by 10/1/11)		Regular-Registration postmarked 10/17/11)		Onsite/Late Registration (after 10/17/11)		Subtotal
<b>Only Sunday (10/23) (All Field Trips must be pre-registered) (**write your choice below)</b>	Members	Nonmembers (includes membership)	Members	Nonmembers (includes membership)	Members	Nonmembers (includes membership)	Members	Nonmembers (includes membership)	
	\$75.00	\$100.00	\$100.00	\$125.00	\$125.00	\$150.00	\$150.00	\$175.00	
<b>Only Monday (10/24)</b>	\$100.00	\$150.00	\$125.00	\$175.00	\$150.00	\$200.00	\$225.00	\$275.00	
<b>Full Conference (See the field trip note above)</b>	\$150.00	\$200.00	\$175.00	\$225.00	\$200.00	\$250.00	\$275.00	\$325.00	
<b>Special Pricing for Full Conference: Retired, Para-educators, or Spouse</b>							\$75.00		
<b>Special Pricing for Full Conference: Students</b>							\$50.00		
<b>Make checks and PO's payable to NHSTA (If your school pays with a purchase order, it would be helpful to bring a copy of it)</b>								<b>TOTAL ENCLOSED:</b> _____	
<b>***Field Trip Choice (for Sunday Only and Full Conference)</b> _____									
<b>Mail registration form and check (or PO) to:</b> NHSTA, PO Box 583, Littleton, NH 03561					<b>REGISTER AND PAY ONLINE AT <a href="http://WWW.NHSTA.NET">WWW.NHSTA.NET</a></b> E-mail: <a href="mailto:nhsta@togetether.net">nhsta@togetether.net</a> Phone: 603-659-2622				
<b>For Housing, call 888-846-4782. Special rates. Affiliation with NHSTA must be mentioned at time of booking.</b>									
<b>You can register on-line and pay with a credit card, Purchase order or check at: <a href="http://www.nhsta.net">www.nhsta.net</a></b>									

**The Little Nature Museum, located at Gould Hill Farm, presents its annual FREE two-day event, NatureFest, 2011, on September 10 and 11 from 11 AM - 5 PM, rain or shine, at The Little Nature Museum, 656 Gould Hill Road, Contoocook.**

**Saturday and Sunday visitor activities:**

Museum is open - exhibits, collections, and activities for children and adults

Exhibit/Activities by the Merrimack County Conservation District

Local beekeepers will be bringing an observation beehive

*Special* nature activities under a tent with PRIZES for children and families

"*Everything Has a Home Discovery Area*" open to families; outdoor activity recommended for children in grades K-3.

**Saturday, September 10 Special Events:**

11 AM - **"Tots on the Trail" nature walk** with Juliana Dapice. Recommended for ages 2 - 6.

Younger siblings who can't walk may join in a backpack (raindate 9/11)

11:30 AM - 1:30 PM - NH School of Falconry with Nancy Cowan; **live raptor presentation and demonstration**

2:30 - 3:30 PM (raindate 9/11) - **Invasive Plant Species Walk and Talk:** Piscataquog Land Conservancy

**Sunday, September 11 Special Events**

11 AM - 2 PM - **Live calf or cow from the Bohanan Farm**, Contoocook, for visitors to see

11 AM - raindate for "Tots on the Trail" nature walk

11:30 AM - 12:30 PM - raindate for Invasive Plant Species Walk and Talk

2:30 - 3:30 PM - **Wildlife Encounters Zoo - live animal program**

Bring the family for a day full of fun!

For information: **603-746-6121 or [www.littlenaturemuseum.org](http://www.littlenaturemuseum.org)**



Check out our great sites for kids: <http://climate.nasa.gov/kids> <http://scijinks.jpl.nasa.gov> <http://spaceplace.nasa.gov>

## **New GOES-R to Give More Tornado Warning Time.** By Dauna Coulter and Dr. Tony Phillips

So far this spring, more than 1,400 tornadoes have struck the U.S. Some of them have cut jaw-dropping trails of destruction across the countryside and, tragically, across inhabited communities, too. Hundreds of lives have been lost in the onslaught.

Throughout the season, the National Weather Service has routinely issued tornado alerts. In the case of the Alabama tornadoes of April 27<sup>th</sup>, forecasters warned of severe weather five full days before the twisters struck. Because they couldn't say precisely *where* the twisters would strike, however, many of their warnings went unheeded.

"If people get a hurricane warning, they often evacuate the area," notes NOAA's Steve Goodman. "But we react differently to tornado warnings."

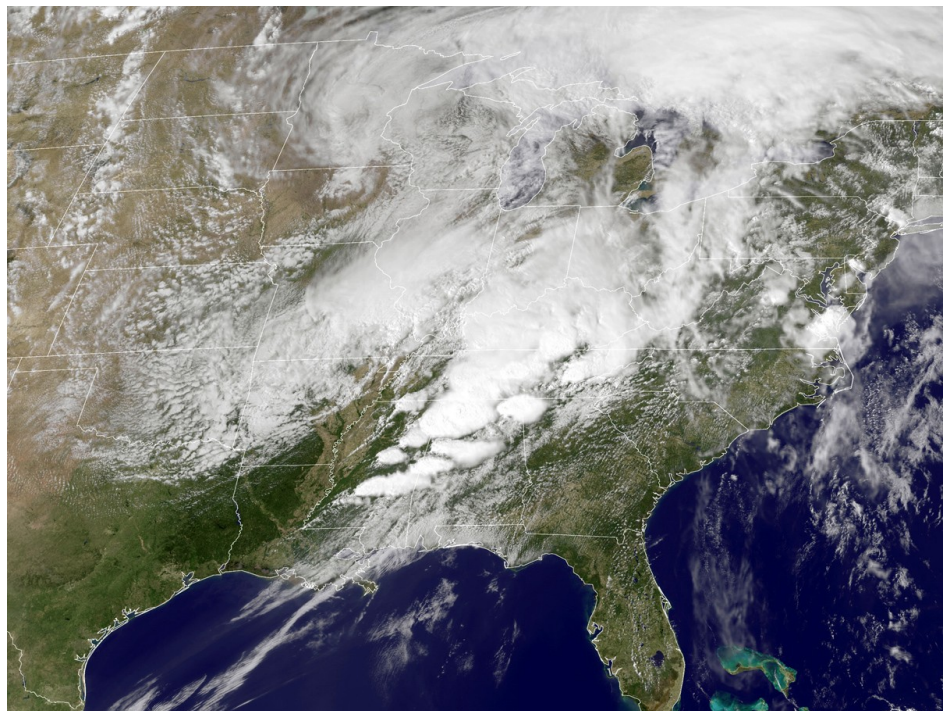
Perhaps it's because tornadoes are smaller than hurricanes, and the odds of a direct hit seem so remote. Recent pictures from Tuscaloosa, Alabama, and Joplin, Missouri, however, show the perils of playing those odds. Goodman believes that more precise warnings could save lives.

To fine-tune tornado warnings, NOAA will soon launch the first in a series of next-generation weather satellites – GOES-R (Geostationary Operational Environmental Satellites-R series). The spacecraft is brimming with advanced sensors for measuring key ingredients of severe weather including winds, cloud growth, and lightning.

"GOES-R will be the first geostationary spacecraft to carry a lightning sensor," says Goodman, the GOES-R Program Senior Scientist. "Studies show that sudden changes in the total lightning activity correlate with storm intensity—and with tornadoes."

The lightning mapper will detect and map not only cloud-to-ground lightning, but also bolts within and between clouds. The kind of cloud-to-ground lightning we see from our front yards accounts for only 15-20 percent of total lightning. To get a clear idea of a storm's intensity, meteorologists need to know about *all* the lightning—a view GOES-R can provide.

All by itself, the lightning mapper will provide 7 minutes more lead time in tornado warnings, according to Goodman. GOES-R's state-of-the-



*This GOES image shows the storms that spurred the intense April 27 tornado outbreak in the southern U.S. Animation showing the development of weather can be seen at*

<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=50347>

art instruments will also improve long-range forecasts.

“The satellite's Advanced Baseline Imager (ABI), for instance, will provide a much clearer picture of clouds,” says NOAA research meteorologist Tim Schmit. Compared to lesser instruments already in orbit, ABI can better detect super-cold “overshooting tops,” evidence of enormous energy and upward velocity that correlate with subsequent severe weather.

“Accurate advanced notice of high-risk tornadic conditions can cue officials to close schools and businesses even before tornadoes are actually detected,” says Schmit.

Forecasters doubt tornadoes can ever be predicted with 100% accuracy. The twisters are just too capricious. GOES-R, however, is a step in the right direction.

Find out more about GOES-R’s unprecedented capabilities at <http://www.goes-r.gov>. Young people can learn more about tornadoes and all kinds of other weather at <http://scijinks.gov>.

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

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**Space Technology.** Distributed by Laura K. Lincoln, on behalf of the Space Place Team.

Space technology is beautiful in different ways. Spacecraft act as our eyes, ears, noses, and brains as they observe our own planet from the vantage point of space, or as they venture beyond Earth orbit to explore the rest of the solar system. In this way, they are marvels of human intelligence, ingenuity, curiosity, and the spirit of adventure. In another way, they are visually beautiful, as well, especially as rendered in their operating environments by technical artists. Take a look at the collection of spacecraft art just added to The Space Place at <http://spaceplace.nasa.gov/gallery-technology/#spacecraft>. Images are suitable for browsing or printing for classroom display.

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## *Calling all Elementary School Teachers!!!!* By Lisa lavalley

Have you wanted to join state educator organizations but didn’t know which ones to join, and found that it was too expensive to join all of them?

The state educator organizations of the four core discipline groups have worked together to offer elementary teachers a special rate to join \*New Hampshire Teachers of Mathematics (NHTM) \*New Hampshire Council of Teachers of English (NHCTE) \*New Hampshire Council for the Social Studies (NHCSS) \*New Hampshire Science Teachers Association (NHSTA)

The benefits of a **New Hampshire Joint Elementary Membership** (NHJEM) are:

Newsletters from all four organizations, full of news, events, resources, activities, and classroom ideas.

The opportunity to become involved with the organizations by serving on committees or the Boards of Directors

Access to high-quality, content-rich professional development opportunities

Connection with hundreds of other elementary as well as middle and high school teachers across the state

Member rates to workshops, conferences, and other activities for all four organizations

Ω



*These articles are provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

Check out our great sites for kids: <http://climate.nasa.gov/kids> <http://scijinks.jpl.nasa.gov> <http://spaceplace.nasa.gov>

## **Solar System Size Surprise.** by Dr. Tony Phillips

News flash: You may be closer to interstellar space than you previously thought.

A team of researchers led by Tom Krimigis of the Johns Hopkins University Applied Physics Laboratory announced the finding in the June 2011 issue of *Nature*. The complicated title of their article, “Zero outward flow velocity for plasma in a heliosheath transition layer,” belies a simple conclusion: The solar system appears to be a billion or more kilometers smaller than earlier estimates.

The recalculation is prompted by data from NASA’s Voyager 1 probe, now 18 billion kilometers from Earth. Voyagers 1 and 2 were designed and built and are managed by NASA’s Jet Propulsion Laboratory. Aging but active, the spacecraft have been traveling toward the stars since 1977 on a heroic mission to leave the solar system and find out what lies beyond.

To accomplish their task, the Voyagers must penetrate the outer walls of the heliosphere, a great bubble of plasma and magnetism blown in space by the solar wind. The heliosphere is so big, it contains all the planets, comets, and asteroids that orbit the sun. Indeed many astronomers hold that the heliosphere defines the boundaries of the solar system. Inside it is “home.” Outside lies the Milky Way. For 30+ years, the spacecraft have been hurtling toward the transition zone. Voyager 1 is closing in.

Much of Voyager 1’s long journey has been uneventful. Last year, however, things began to change. In June 2010, Voyager 1 beamed back a startling number: zero. That’s the outward velocity of the solar wind where the probe is now.

“This is the first sign that the frontier is upon us,” says Krimigis.

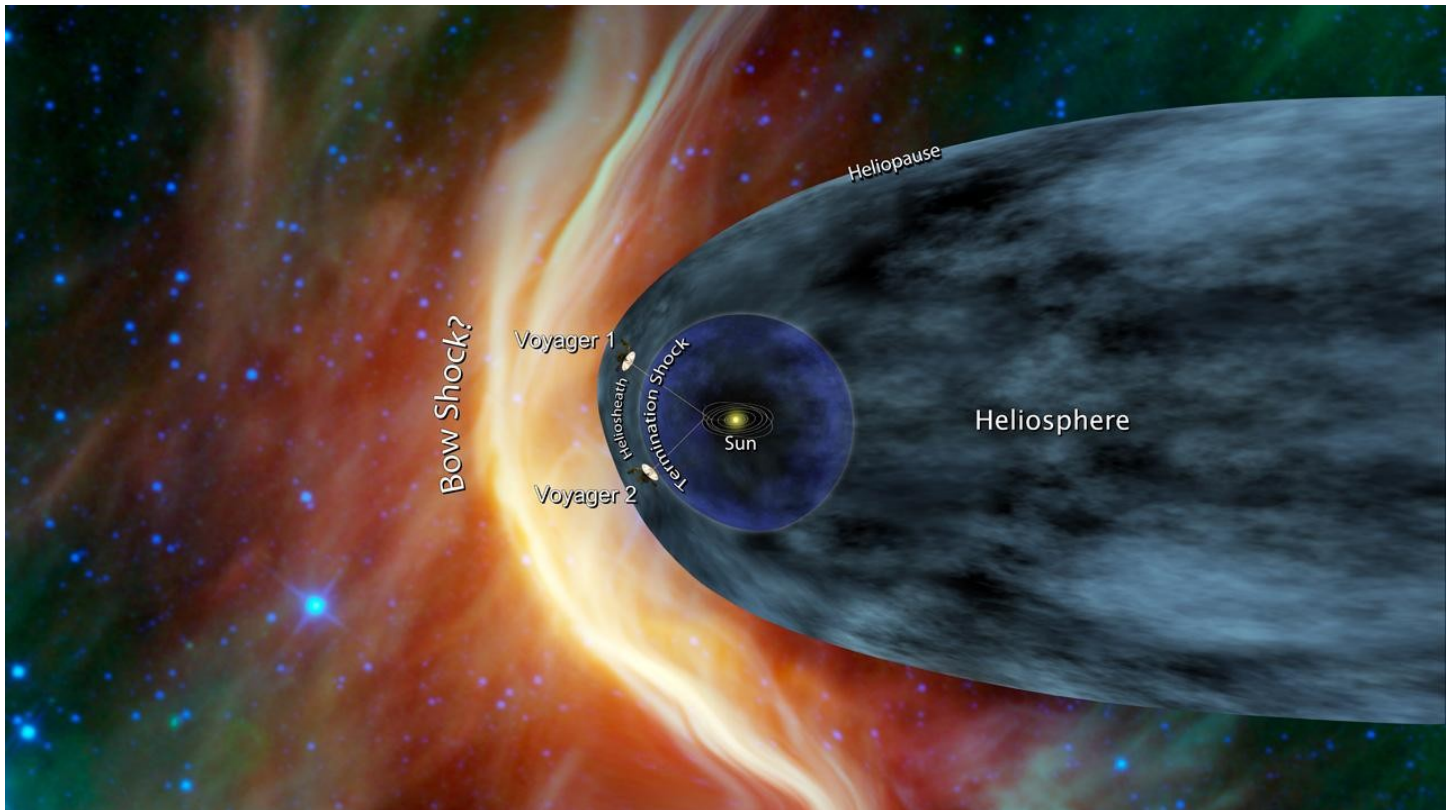
Previously, researchers thought the crossing was still years and billions of kilometers away, but a new analysis gave them second thoughts. Krimigis and colleagues combined Voyager data with previously unpublished measurements from the Cassini spacecraft. Cassini, on a mission to study Saturn, is nowhere near the edge of the solar system, but one of its instruments can detect atoms streaming into our solar system from the outside. Comparing data from the two locations, the team concluded that the edge of the heliosphere lies somewhere between 16 to 23 billion kilometers from the sun, with a best estimate of approximately 18 billion kilometers.

Because Voyager 1 is already nearly 18 billion kilometers out, it could cross into interstellar space at any time—maybe even as you are reading this article.

“How close are we?” wonders Ed Stone, Caltech professor and principal investigator of the Voyager project since the beginning. “We don’t know, but Voyager 1 speeds outward a billion miles every three years, so we may not have long to wait.”

Stay tuned for the crossing.

For more about the missions of Voyager 1 and 2, see <http://voyager.jpl.nasa.gov/>. Another Voyager project scientist, Merav Opher, is the guest on the newest Space Place Live cartoon interview show for kids at <http://spaceplace.nasa.gov/space-place-live>.



*This artist's concept shows NASA's two Voyager spacecraft exploring a turbulent region of space known as the heliosheath, the outer shell of the bubble of charged particles around our sun. Image credit: NASA/JPL-Caltech.*

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- Solve the mystery of Stonehenge and the solstices.

Know where the volcanic ash blows so you can go the other way.

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With frogs leaping and butterflies fluttering, kids will race to the Finish in the new “Leaps and Flutters” game at Climate Kids. Along the way, this game (modeled after Chutes and Ladders) will present opportunities to help the environment by such acts as recycling an aluminum can, or to not help the environment by, oh, say, leaving the refrigerator door open too long. Good deeds leap the player up a row or two, not-so-good deeds send the player a-fluttering back down. All the actions—helpful and not—are explained in the accompanying article. And why should we care about frogs and butterflies anyway? That, too, becomes clear. Visit <http://climate.nasa.gov/kids/games/leapsandflutters>.

Distributed by Laura K. Lincoln, on behalf of the Climate Kids Team.

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You can view *The Floating Tin Sponge* online in Flinn's "Teaching Chemistry" Video Series. Go to [www.flinnsci.com](http://www.flinnsci.com) and click on "Teaching Chemistry Videos." Then click on "View Chemistry Video Topics" and select "Chemical Reactions." Choose the package "Single Replacement Reactions" which contains *The Floating Tin Sponge*. Viewing Passes (Catalog No. EL8000) are \$7.95 per package and give you 2-year 24/7 viewing.

*Chem Fax* are free to teachers only. To access your copies please go to:

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**An Announcement and Free Resources from an NSTA Author.** Submitted by Dr. Thomas O'Brien, Professor of Science Teacher Education, Binghamton University (State University of New York/SUNY)

The National Science Teachers Association/NSTA Press *allows anyone to download a free chapter of any/all of their titles*. While I've found this to be a wonderful resource for my preservice and inservice science teachers, I'd like to specifically alert you to *free resources* associated with a three-volume book series that I have authored.

*Brain-Powered Science: Teaching and Learning with Discrepant Events* (2010), *More BPS...* (2011) and *Even More BPS...* (2011): This series features a new dual-purpose instructional strategy for use in *preservice* science methods courses (as a supplement to or substitute for more traditional science methods books) and *inservice science professional development programs* (e.g., Summer PD Institutes, Professional Learning Communities, etc.) and by individual science teachers (**grades 5-12**).

Each activity in the three books (used singly or combined in any order) serves both as a:

(1) *model, inquiry-oriented, discrepant event activity* that teachers can use to teach science to their own grades 5-12 students (in a way that meets the *S<sub>2</sub>EE<sub>2</sub>R* criteria of being Safe, Simple, Economical, Enjoyable, Effective & Relevant), and (2) *visual participatory analogy* to teach teachers principles of research-informed, Curriculum- Instruction-Assessment, best practices (e.g., the first book focuses on key principles of cognitive learning theory applied to science teaching).

Like all NSTA Press books, these books are modestly priced (in traditional paper form and as e-books) and allow anyone to *download for free* the Introduction + Table of Content + a Sample activity. Go to: <http://www.nsta.org/publications/press/brainpowered.aspx> (click on **Read More** for the individual books & then scroll down to **Read Inside to download the free materials**)

The *three free activities* for the respective books in the *BPS* series are:

Activity 16. Air Mass Matters: Creating a Need-to-Know [activities that make air “sensible”]

Activity 15. Measurements & Molecules Matters: Less is More & Curriculum “Survival of the Fittest” [compelling macroscopic evidence for the molecular view of matter]

Activity 10. Osmosis and “Naked” Eggs: The Environment Matters [a 5E Teaching Cycle unit]

Additionally, the hundreds of URLs cited in the Internet Connections feature are available *free-of-charge* at the NSTA Press Extras page: <http://www.nsta.org/publications/press/extras/> This page also lists *free resources* from a select sample of other NSTA Press titles.

Another *free* resource that many science teachers have found useful is the large collection of science education websites and annotated bibliographies that I've assembled at: <http://csmte.binghamton.edu/links.html> (these websites are updated annually).

If you find my NSTA books and/or free Internet resources to be of value, I would appreciate you sharing them with the science teachers with whom you work. Thank you for your consideration.

Sincerely,

Dr. Thomas O'Brien, Professor of Science Teacher Education

Binghamton University (State University of New York/SUNY)

School of Education, PO Box 6000 Binghamton, NY 13902-6000

607-777-4877 [tobrien@binghamton.edu](mailto:tobrien@binghamton.edu).

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## Reflections on Conferences

If you were a first time attendee at either one of our conferences in the 2010-2011 school year (the fall conference at Attitash or the spring conference at Southern New Hampshire University) you might have thought, from the excitement and energy, it was the first time for all of us. It felt that way for me and I've been coming to these events as far back as when we had a snorkel guy named Robert Ballard as a guest speaker. He related his plans to go deep down into the cold Atlantic to find the remains of a ship named Titanic. The energy of those days, some thirty years ago, remains. The reason is simple; these NHSTA conferences are multi-faceted, exciting events. We have not been content to offer a great featured speaker and workshops to our members and guests, there is also considerable energy put into that old standard; location, location, location. And there are no details, it's all important to us; the side bars science thrills (that can nearly take your eardrums out), the Rock Raffle, and the vendors are up front, special events.

Reflecting on Attitash and SNHU, I'd like to, once again, honor our generous sales people. Their offerings are 'what we need'. Want to know what's new? Want to try out science tools? Want to meet the person on the other end of the e-mail when ordering? Want to ask questions of a real expert in a science field for ideas, offerings, and equipment? Come walk around these tables at our next conference. You may have to navigate a great treat's table, a Laughing Cocka Kookaburra, a Brown Lemur, and a Madagats, but it's worth it. The sounds of these creatures was a delight, and who wouldn't want to be able to rotate your hind quarters 180 degrees like the Coati Mundi does. But if you brave all of this, you get to the Free Stuff! These wonderful people bring and give away hundreds of dollars of free items and experiences for raffle. The Honor List of vendors below all contributed to a free raffle opportunity. So bring your budgets and luck to our next NHSTA conference; and to these wonderful professionals; Thank You!

What keeps something feeling like the first time? When every time you do it, it's bran new. Our next NHSTA conference is October 23-24 at Church landing, in Meredith on Lake Winnepesaukee. Beautiful; come to our conference for the first time!

The Parking Lot Guy

(...is Robert Schroeder, hard working NHSTA Board Member. Ed.)

**Thank You to the following vendors for their generous donation of a door prize item at:  
ATTITASH 2010 and/or SNHU 2011 Conferences.**

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Judy Silverberg NHFG

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[jderosa@MountWashington.org](mailto:jderosa@MountWashington.org)

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## Youth Incentive Award

The Coleopterists Society, an international organization of professionals and hobbyists interested in the study of beetles, has established a program to recognize young people studying beetles. The Society has pledged to provide up to \$300 each year for the Youth Incentive Award Program. Each of the two awards (Junior and Senior) is a monetary grant of \$150, award recipients also will receive up to \$200 (Junior Award) and \$400 (Senior Award) of equipment credit from the [BioQuip Products](#) catalog. In addition to monetary and BioQuip grants, award recipients will receive a one year subscription to the society journal, *The Coleopterists Bulletin*

**This is for children of grades 7-12 only.**

The objectives of the Youth Incentive Award are to:

- provide encouragement and assistance to young beetle enthusiasts (grades 7-12).
- promote the study of beetles, the most diverse group of insects, as a rewarding life-long avocation or career.
- provide opportunities for young people to develop important life skills such as leadership, cooperation, communication, planning and conducting a scientific study, grant writing and managing funds.
- provide some financial support to enrich activities or projects.

A Youth Incentive Award Committee from the Coleopterists Society will evaluate the applications and will select up to two winners annually; **one each in junior (grades 7-9) and senior (grades 10-12)** categories. The selection committee invites proposals for topics such as field collecting trips to conduct beetle species inventories or diversity studies, attending workshops or visiting entomology or natural history museums for special training and projects on beetles, studying aspects of beetle biology, etc. The proposed activities or projects will be evaluated on their degree of creativity, educational benefit to the applicant, scientific merit, feasibility and budgetary planning. This Award is for proposals by individuals only. Each applicant is strongly encouraged to find an adult advisor (teacher, youth group leader, parent, etc.) to provide guidance in proposal development, but the proposal **MUST** be written by the applicant. The Coleopterists Society would also be happy to assist in establishing contacts between youth and professional Coleopterists.

Additional details and application forms for **The Coleopterists Society Youth Incentive Award Program** can be obtained from: Dr. David G. Furth; Entomology, NHB, MRC 165; P.O. Box 37012; Smithsonian Institution; Washington, D. C. 20013-7012 (phone: 202-633-0990, FAX: 202-786-2894, email: [furthd@si.edu](mailto:furthd@si.edu)). Also check The Coleopterists Society Web-Page: [http://www.coleopsoc.org/default.asp?Action=Show\\_SocietyInfo&ID=Youth](http://www.coleopsoc.org/default.asp?Action=Show_SocietyInfo&ID=Youth)

Applications for this year must be submitted by **1 November 2011**.

**YOUTH INCENTIVE AWARD - APPLICATION Page**

**THE COLEOPTERISTS SOCIETY**

1. Applicant's Name: \_\_\_\_\_ Birth date: \_\_\_\_\_

2. Address: \_\_\_\_\_  
\_\_\_\_\_ Phone:(\_\_\_\_)\_\_\_\_\_ Email:  
\_\_\_\_\_

3. Advisor's Name: \_\_\_\_\_

4. Advisor's Address: \_\_\_\_\_  
\_\_\_\_\_ Phone:(\_\_\_\_)\_\_\_\_\_ Email: \_\_\_\_\_

5. Advisor's Biology/Entomology Background: \_\_\_\_\_

6. Division (check one): \_\_\_\_ Junior (grades 7-9) \_\_\_\_ Senior (grades 10-12)

**7. SIGNATURES:**

**Participant:** I, \_\_\_\_\_, submit my application for consideration by the review committee for The Coleopterists Society Youth Incentive Award (YIA) Program. If my project/activity is funded through the YIA Program, I agree to submit a report on my results.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Parent:** I hereby grant permission for my daughter/son to participate in The Coleopterists Society Youth Incentive Award Program. I have read the application and understand the procedures and conditions set forth.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**Advisor:** I agree to serve as adult advisor for this project/activity and will strive to provide the advisee with encouragement, suggestions and assistance in the development and implementation of her/his project or activity.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

8. Please include the information requested below. Be as specific as you can; have your adult advisor assist you, but it must be apparent that you wrote the sections below. A few things to consider: what are some or the research/study needs to be addressed by this project/activity (why do you want to do what you are proposing); is your timetable possible (plan carefully, especially if field work is involved); what supplies/resources will you need to complete the project/activity; will any other people (in addition to your advisor) be working with you (nature of their involvement). You may use extra/separate sheets.

**Objectives:**

**Methods/Project Plan:**

**Budget:**

# ***SAFETY IN THE SCIENCE CLASSROOM; “Material Safety Data Sheets”***

by Brian Wazlaw, Ed.D.

## **What is a Material Safety Data Sheet (MSDS)?**

A Material Safety Data Sheet contains information prepared by the manufacturer or distributor of a chemical. The MSDS provides information on the: physical and chemical properties, hazard identification, health and toxicological information, routes of exposure, and stability and reactivity of a chemical. The MSDS also contains additional information on storage, handling, composition, and disposal.

The objective of the MSDS sheet is to provide purchasers and users of chemicals information on the foreseeable chemical and physical hazards associated with the use of a particular chemical.

## **What are the regulations in New Hampshire regarding MSDS sheets?**

### **Chapter 277 – A Toxic Substances in the Workplace (Workers’ Right to Know Law”)**

#### **Chapter 277 – A:4 MSDS Sheets**

1. ...., no person shall obtain, purchase, manufacture, formulate, transport, or distribute any toxic substance within this state unless the substance is accompanied by a complete material safety data sheet prepared by the manufacturer, producer, or formulator of such substance no more than one year prior to the obtainment, purchase, manufacture, formulation, transportation, or distribution.

#### **Chapter 277 – A:5 Employer’s Duty to Provide Information**

... every employer whose employees handle, use, or are otherwise exposed to any toxic substance during the course and scope of their employment shall :

I. Keep on file in a convenient office location and make available for examination and reproduction on request a material safety data sheet for each toxic substance or product mixture containing two or more toxic substances to which an employee may be exposed in carrying out his duties.

III. Post a notice of the availability of MSDSs for each toxic substance to which the employee may be ex-

posed and, upon the request by an employee for an MSDS, supply such data within 72 hours.

IV. Conduct an education training program...for all employees routinely exposed to toxic substances ... prescribing proper and safe procedures for handling under all circumstances, and advising them of the potential risks involved.

V. Make every reasonable effort to obtain from manufacturers, producers, formulators, the federal Environmental Protection Agency, or any other authoritative source, any new or updated information concerning the toxic substances in his workplace and to make such information available to all affected employees immediately.

VII. Send a copy of each MSDS with the details of the specific locations of each toxic substance and available extinguishing agents to the local fire department. Such MSDSs shall be available for public inspection at such fire departments.

## **What other regulations or standards should be reviewed?**

### **1. 29 CFR OSHA 1910.1200 Hazard Communication Standard 1910.1200(b)(4)(ii)**

Employers shall maintain copies of any material safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a material safety data sheet as soon as possible for sealed containers of hazardous chemicals received without a material safety data sheet if an employee requests the material safety data sheet, and shall ensure that the material safety data sheets are readily accessible during each work shift to employees when they are in their work area(s); and,

### **2. 29 CFR OSHA 1910.1450 Occupational Exposures to Hazardous Chemicals in the Laboratories 1910.1450 (h)(ii)**

ii) Employers shall maintain any material safety data

sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees.

### 3. Exeter Region Cooperative School District, NH Chemical Hygiene Plan

#### 4. Material Safety Data Sheets

a. Each MSDS sheet received with incoming shipments shall be maintained and made available to employees and students.....

### 4. National Science Teachers Association, *Investigating Safely: A guide For High School Teachers* 2004, Page 52.

#### Material Safety Data Sheets

“Federal and state laws require that MSDS sheets be available all the time for every chemical you use or store. Administrative and non-instructional staff, teachers, students, and emergency responders must have easy access to them. For practical purposes, there should be at least two sets of documents. A complete set of MSDSs for everything in the building should be kept in the main office. A set of MSDSs for items stored in a specific location should be at that location. Your local fire department should also be provided with an inventory of materials stored and the location of the MSDSs for the materials. First responders need to know what they might encounter in a fire or other emergency.

You maybe surprised to learn that “every chemical “ includes everyday items such as, markers, dish and hand soaps, and even cooking items such as, baking soda. When chemicals are ordered through the regular purchase order system, the requisition should specify, that the vendor “Provide MSDS with the order. Shipment must have MSDS to be accepted.” The preferred method for meeting the MSDS requirement is to train whoever is responsible for receiving and accepting packages to look for the MSDS before accepting the shipment.

If you need to bring chemicals from home or purchase them at a store, you must obtain the MSDS yourself.”

### 5. Laboratory Safety Institute, Natick MA

Links to MSDS information:

<http://labsafetyinstitute.org/Websites.html>

### 6. US Consumer and Product Safety Commission,

Department of Health and Human Services,  
CDC, NIOSH

*School Chemistry Laboratory Safety Guide,*  
2006,

Page12

#### Material Safety Data Sheets

“ Material Safety Data Sheets (MSDS) contain information regarding the proper procedures for handling, storing, and disposing of chemical substances.

An MSDS accompanies all chemicals or kits that contain chemicals. If an MSDS does not accompany a chemical, many web sites and science supply companies can supply one, or they can be obtained from [www.msds-online.com](http://www.msds-online.com).

Save all MSDSs and store in a designated file or binder using a system that is organized and easy to understand. Place the MSDS collection in a central, easily accessible location known to all workers and emergency personnel. “

### **Do I need an MSDS sheet for every chemical in storage, and for every chemical used in class?**

Yes. If you are using chemicals purchased from a chemical supply company or chemicals purchased locally, you need an MSDS sheet. If you use such chemicals as corn oil, sodium bicarbonate, vinegar, sugar, etc., or any chemical you purchase locally or bring to your classroom, you need an MSDS sheet.

### **What is my obligation?**

As a teacher, it is your Duty of Care to address the foreseeable dangers, the toxicity, the appropriateness, the hazards, and the risks associated with the materials you use in class.

Generally, textbooks, laboratory manuals, and other instructional materials designate the safety precautions needed for a particular laboratory activity. However, total reliance on such publications to provide complete and accurate information is not advisable. Teachers should consult additional references, including Material Safety Data Sheets before

undertaking an unfamiliar or familiar activity.

### **What is the best location for the MSDS sheets?**

MSDS sheets need to be readily available to employees and emergency personnel. Suggested locations would be the chemical storage bunker, the science office, the main office, and the facilities department.

### **Do I need the MSDS sheets in my classroom?**

Always a question. Although MSDS sheets should be available in locations, such as, the chemical bunker, the science office, and the main office, it would be a best practice to have in your classroom/laboratory the MSDS sheets for the chemicals you are actually using for a particular activity in your laboratory. This would ensure the ready availability of the MSDS sheet for your reference, for the school nurse, and for emergency personnel.

Yes, the first year you begin maintaining and acquiring MSDS sheets, for the chemicals you use for your activities, can be time consuming. But remember, the MSDS sheets you retain in your classroom/laboratory are for the chemicals you are actually using for your laboratory activities.

### **Material Data Safety Sheet Resources**

MSDS Sheets -

[www.msds.com](http://www.msds.com)

[www.siri.org](http://www.siri.org)

[www.flinnsci.com](http://www.flinnsci.com)

Information describing the content of an MSDS sheet

[www.labsafety.com/refinfo/ezfacts/ezf250.htm](http://www.labsafety.com/refinfo/ezfacts/ezf250.htm)

[www.meridianeng.com/msds.html](http://www.meridianeng.com/msds.html)

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For questions or additional information, contact:

Brian Wazlaw, Ed.D.

Laboratory Safety Officer

Exeter Region Cooperative School District

Exeter, NH 03833

603 775 8659

[bwazlaw@sau16.org](mailto:bwazlaw@sau16.org)

[briwazlaw@aol.com](mailto:briwazlaw@aol.com)

**As you may know, we recently re-launched the website *Science News for Kids* ([www.sciencenewsforkids.org](http://www.sciencenewsforkids.org)) with a new look and enhanced usability.**

The site has hundreds of articles explaining science in terms that kids can understand. Many articles also have Teacher's Questions and Word Finds that science teachers can use in their classes. To help teachers further, we also have a new "For Educators" section (<http://www.sciencenewsforkids.org/mysnk/for-educators/>) with resources and information. To get weekly updates of *Science News for Kids* stories and other useful resources, I encourage you to sign-up for the *SNK E-Blast* (<https://www.societyforscience.org/sslpage.aspx?pid=782&tab=1>), which was also re-designed during the re-launch.

Caitlin Jennings, Communications Specialist, Society for Science & the Public

1719 N Street NW, Washington, D.C. 20036-2801

202.785.2255 (phone), 202.785.1243 (fax)

[cjennings@societyforscience.org](mailto:cjennings@societyforscience.org)



**Sign up to receive SSP's Monthly Newsletter to keep up with the latest on Intel STS, Intel ISEF, Broadcom MASTERS, *Science News*, *Science News for Kids*, alumni updates, and more**

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## **Celebrate Physiology Understanding (PhUn) Week 2011 in November**

PhUn Week is the leading APS outreach program to school classrooms, reaching more than 10,000 K-12 students and teachers each year. This year PhUn Week is scheduled for November 7-11, but events can happen throughout November 2011. This exciting outreach program exposes students to the wonders of science and can inspire the next generation of physiologists. Reach out to a K-12 science teacher in your local community and partner NOW to plan a PhUn Week event.

For more information, visit the program website at [www.phunweek.org](http://www.phunweek.org), view multimedia highlights from last year, and use the Save-the-Date flyer to help prepare and connect to a teacher. **Complete the online PhUn Week Event Planner in partnership with a teacher no later than October 1st in order to ensure that you receive FREE PhUn Week instructional resources and giveaways for the students:** <http://www.phunweek.org/pages/phun05a.shtml>.

Facebook: Become a fan of: "APS Physiology Understanding" at: <http://www.facebook.com/PhUnWeek>

Questions? Contact the Mel Limson in the APS Education Office at: [mlimson@the-aps.org](mailto:mlimson@the-aps.org).



## Joining NHSTA—2011-2012, by Leslie McRobie, NHSTA President

Here is a reminder about membership dues for the New Hampshire Science Teachers Association, (NHSTA). This is truly the best membership deal out there! Dues are presently \$20.00 per year for an individual membership. Retired, pre-service, and first year New Hampshire teachers receive a complimentary one year membership. School membership prices are as follows: (1-10 teachers \$200; 11-20 teachers \$250; 21 or more teachers \$300). Membership dues pay for a one year membership effective from the joining date until one year later.

NHSTA is the professional science teachers' organization for the state of New Hampshire. The benefits of membership in NHSTA include:

*\*your own copy of the quarterly NHSTA newsletter, full of science news, events, resources, activities, and classroom ideas delivered to your home; \*the opportunity to become involved in a leadership role by serving on an NHSTA committee or on the NHSTA Board of Directors; \*access to high quality, content-rich, professional development opportunities; \*a chance to be recognized through receipt of an NHSTA award such as the Bill Ewert Award or the Howard H. Wagner Award; \*affiliation with the state's only professional organization specifically for science educators; \*satisfaction of knowing that you are connected with over 700 other science educators throughout New Hampshire; \*the opportunity to apply for mini-grants offered by NHSTA; \*registration forms delivered to your home for all NHSTA sponsored events; \*reduced registration fees to all NHSTA sponsored activities; \*early electronic notification of science opportunities in the state.*

Your dues purchase a one year membership. You can now join/renew your NHSTA membership on-line! Go to <http://www.nhsta.net/home/join> You can pay with your credit card or mail a check!

**To join/renew your membership the old way, please fill in the following form and send it with a check for the appropriate amount. A free membership is extended to retired, pre-service and first year K-16 New Hampshire teachers.** Mail the form and check to: NHSTA, PO Box 583, Littleton, NH 03561. The form below is also available on line at: [http://www.nhsta.net/downloads/NHSTA\\_join.pdf](http://www.nhsta.net/downloads/NHSTA_join.pdf)

Name: \_\_\_\_\_

Please check one of the following:

\_\_\_\_\_ New NHSTA Member (\$20)    \_\_\_\_\_ Renewing NHSTA Member (\$20)  
\_\_\_\_\_ Retired teacher (complimentary)    \_\_\_\_\_ Pre-service teacher (complimentary)  
\_\_\_\_\_ First Year Teacher (complimentary - one who has not taught before...)  
\_\_\_\_\_ School Membership\* (1-10 teachers \$200; 11-20 teachers \$250; 21 or more teachers \$300)

School Name: \_\_\_\_\_

NHSTA member address Preference: \_\_\_\_\_ Home \_\_\_\_\_ School

School Address: Street \_\_\_\_\_ Town \_\_\_\_\_ Zip code \_\_\_\_\_

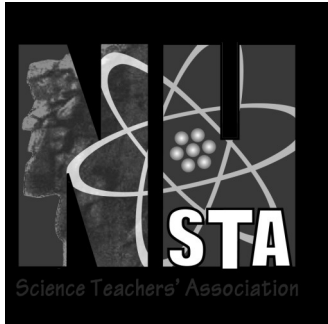
School Phone \_\_\_\_\_ school e-mail \_\_\_\_\_ \*\*

Home Address: Street \_\_\_\_\_ Town \_\_\_\_\_ Zip code \_\_\_\_\_

Home phone \_\_\_\_\_, home e-mail \_\_\_\_\_ \*\*

Grade(s) taught \_\_\_\_\_ Subject taught \_\_\_\_\_

\*If this is a school membership, attach all members' information in one envelope with check and make note of school on all applications. \*\*If you provide an e-mail address, we will confirm receipt of your application. Send form to: NHSTA, PO Box 583, Littleton, NH 03561



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# NHSTA Newsletter, Fall, MMXI

## E-edition

*The New Hampshire Science Teachers' Association is the professional science teaching organization for our state. Its purpose, as stated in its constitution, is to promote and improve science education in New Hampshire. NHSTA membership consists of all people interested in science education who have paid their regular membership dues. Dues are presently Twenty Dollars per year. NHSTA is a volunteer organization run by an elected Executive Board consisting of a president, first vice-president, second vice-president, secretary, treasurer and at-large board member. The Board of Directors is appointed by the Executive Board and represents New Hampshire's geographic regions and its various educational levels and disciplines. The Board meets monthly. For more info visit [www.nhsta.net](http://www.nhsta.net)*

Have a teaching idea that you'd like to share? An event? An opinion? Type it in a word processing program and e-mail it as an attachment (or—just paste it in the e-mail) to: [nhsta@together.net](mailto:nhsta@together.net) with “newsletter” in the subject area.