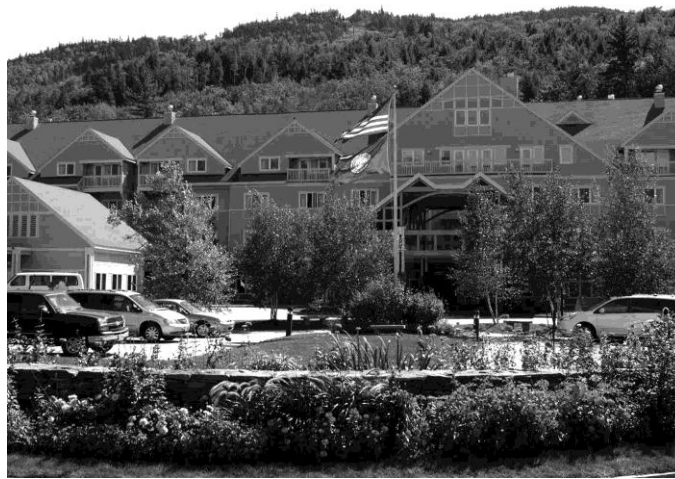


***New Hampshire Science Teachers' Association
K-12 Science Education Conference***

Sunday, October 24, 2010 - Monday, October 25, 2010

***Attitash Grand Summit Hotel
Bartlett, NH***



***Featured Speaker: Richard Byrne*
*"Info Everywhere! What's Good and What's Not?"***

Keynote Speaker

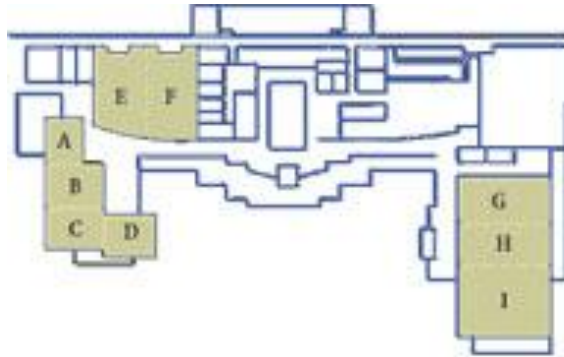
Richard Byrne: Info Everywhere! Tools Everywhere! What's Good and What's Not?

Today's modern Internet provides students with a wealth of information that is far easier to access than it was just ten years ago. Likewise, the modern Internet provides teachers and students with an abundance for consuming and creating information. These developments present all educators with the challenge of creating students that are savvy consumers and producers of information. In his talk, Richard Byrne will share ideas that will help educators address this challenge. As a practicing classroom teacher, Richard shares his ideas from an "in the trenches" perspective.

About Richard Byrne: Richard Byrne is a high school teacher, Google Certified Teacher and author of the award-winning blog. Richard started Free Technology for Teachers to share with others the wealth of powerful teaching and learning tools available on the web. Today, Free Technology For Teachers (www.freetech4teachers.com) is read by more than 50,000 people each month. In addition to his blog, Richard's writing has appeared in Teacher Librarian and will appear in a forthcoming book for school administrators about the use of technology in classroom. Being a classroom teacher himself, Richard's presentations focus on practical classroom uses of web-based resources for the everyday teacher. Whether you've been using technology in your classroom for years or you're just starting to explore technology integration ideas, Richard's presentations offer something new and practical for you.

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

Attitash Room Layout



Letter	Room
A	Rainbow Trout
B	Cougar
C	Canadian Lynx
D	Gray Wolf
E	Peregrine Falcon
F	Bald Eagle
G	White Tail Deer
H	American Black Bear
I	Bull Moose
2 nd Flr	Owl's Nest, Fox Den

NHSTA FALL CONFERENCE SCHEDULE
Sunday, October 24, 2010

12:00 - 6:00	Exhibits	Peregrine Falcon Room
9:00-5:00	Registration	Lobby
9:00-3:00	Full Day Field Trips	must be pre-registered
12:00-3:00	Half Day Field Trips	must be pre-registered
4:30-6:30	Social Hour/Share-a-thon/Rock Raffle	Peregrine Falcon Room

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: 9:00 am – 3:00 pm or 12:00 pm - 3:00 pm
Pre-Registration Required
Please note meeting times and locations

1. How do Scientists and Students Measure Forest Carbon Storage?

Meeting Location: Bartlett Experimental Forest
Meeting Time: 12:00 pm

Sarah Silverberg, University of New Hampshire and Mary Martin, University of New Hampshire
During the workshop participants will begin by performing hands-on “field engagement” activities that address the concepts students should understand before entering the field. How do you measure trees? Where is carbon stored in trees? What are the units of carbon storage? They will then use this knowledge to design their own basic procedure for measurement and analysis. Out in the field we will view and learn about the carbon cycle research being conducted in the Bartlett Experimental Forest. Participants will make comparisons between their procedure and the procedures we discuss at the experimental field plots. The group will have an opportunity to set up a basic sample site and practice making tree measurements in a small area of the site before returning to the classroom. In the last portion of the workshop we will take a brief look at data analysis using some sample data from other sites in New England. Participants will leave the workshop with a good foundation for estimating carbon storage in their schoolyard, the materials they will need to answer any questions they have (including student instructions and datasheets), as well as ideas for how to connect this work to other GLOBE Carbon Cycle activities, ecosystem studies, climate studies and personal action plans (carbon footprint analysis).

Max capacity: 20. High, life science, environmental science, 1/2 day (3-4 hrs)

Directions: Bartlett Experimental Forest, Bartlett, NH

From the East: From Rte 16 turn onto 302 East and drive approximately 6.5 miles. Pass Bear Notch Rd. Turn LEFT onto Pine St immediately after crossing the railroad tracks. Follow the road to the right as it dead ends into a dirt driveway with several buildings. We will meet at the building on the far end of the parking lot. From the West: Follow 302 West through Crawford Notch toward the Town of Bartlett. As you come into town pass a baseball diamond on the right. Turn RIGHT immediately before the railroad tracks. Follow the road to the right as it dead ends into a dirt driveway with several buildings. We will meet at the building on the far end of the parking lot.

2. Educational Programs presented by Mount Washington Observatory Weather Discovery Center.

Michelle Cruz, Mount Washington Observatory

During your visit to the Weather Discovery Center you'll have the opportunity to explore brand new exhibits including World Weather Extremes and New England Extremes. You'll talk to an MWO meteorologist working on the summit as they present their live distance learning program. MWO educators will also be available to share information about new programs for you classroom. All you'll need to bring is yourself! Elementary/middle, middle, middle/high, earth/space science, environmental science

Directions: Weather Discovery Center. Located next to Citizens Bank on Main Street in North Conway Village. GPS: 2779 White Mountain Highway, North Conway, NH 03860

Meeting Location: MWO Weather Discovery Center in North Conway

Meeting Time: 12:00pm

3. A Hike up Mt Willard in Crawford Notch.

Brewster Bartlett, Science Teacher, Pinkerton Academy

The hike up this 2,815-foot spur of the Willey Range is a moderate climb closed in by trees. The end of this hike has panoramic views of Crawford Notch. We will be discussing geology, flora and fauna as we progress up the mountain. Once the summit has been reached we will have lunch and discuss how you could organize and run a field trip up this mountain.

Duration: 1/2 day (3-4 hrs)

Directions: We will meet in the AMC Highland Center, Crawford Notch. * From the Jackson-North Conway area, follow US 302 west at Glen where it splits from NH 16. US 302 passes through Bartlett, then heads north through Crawford Notch. At the top of the Notch, roughly 20 miles from the junction of NH 16 and US 302, the road goes through a narrow pass between two cliffs. The parking area for Crawford Depot is a few hundred yards up the road on the left. * From Twin Mountain, take US 302 east. Crawford Depot is on the right just beyond the turnoff for the AMC's Highland Center, about eight miles south of the junction of US 302 and US 3.

Notes: Dress for all weather! Bring: Raincoat, gloves, layers of warm clothes, hat, hiking boots, lunch, water, tissues, small pad of paper with pen, plastic container to collect interesting specimens found on the way up the trail, first aid kit and Optional-binoculars, camera. Elementary/middle, middle/high, life science, earth/space science, environmental science.

Meeting Location:

AMC Highland Center parking lot, Crawford Notch

Meeting Time: 12:00pm

4. The Civil War Quest: Using maps, places & technology to bring American history to life.

Steven Glazer, Poetics of Place.

From 2011 - 2015, the U.S. will mark the 150th anniversary of the American Civil War. Through investigating historic cemeteries with modern technologies, students can build math, geography, research & web skills as they share local soldier stories with a national audience. Elementary/middle, middle, middle/high, high, technology, mathematics, geography, social studies, language arts

Duration: 1/2 day (3-4 hrs)

Directions: Local NH cemetery, TBD

Meeting Location: Attitash, Rainbow Trout

Meeting Time: 12:00pm

5. Bringing Ecological Research to the Classroom: a visit to the Hubbard Brook Experimental Forest.

Meeting Location: Hubbard Brook Experimental Forest

Meeting Time: 9:00 am

Geoff Wilson and Jackie Wilson, Hubbard Brook Research Foundation and Lisa Lavalley, Pinkerton Academy.

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 lesson ideas that accomplish this, using data from HB. In addition, participants will be introduced to an ecological field lesson to bring back to the classroom. Pinkerton Academy teacher Lisa Lavalley will share her experience as a teacher-researcher and explain how isopods, (aka pill bugs, roly pollys, potato bugs and sowbugs) are ideal organisms around which to base ecological studies. Teachers will be shown how to collect isopods, and given protocols, datasets and questions to do back at classroom. Participants should wear appropriate footwear and clothing that allows them to hike comfortably in the forest, even in the rain. Bring a bag lunch and beverage. Rest room facilities will be available. Middle/high, life science, environmental science.

Directions: Hubbard Brook Experimental Forest, Woodstock, NH. Take I-93 to exit 30. At the bottom of the exit ramp turn right onto Route 3 South. Travel 1.1 miles to Mirror Lake Road on the right (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.

Duration: whole day (6-7 hrs)

Any questions: contact Jackie Wilson at jwilson@hbresearchfoundation.org.

6. Integrating Learning: A Trip Through The Redstone Quarry.

Meeting Location: Redstone, NH

Meeting Time: 9:00 am

Michelle LaRue, A. Crosby Kennett Middle School.

This will be a moderate hike into the Redstone Quarry. Students from elementary to high school could benefit from this field study. Equipment and buildings still survive today in the quarry, detailing what life was like when the area played an important role in New England business. This trip is an introduction to the rock cycle and local history. It offers a well-rounded opportunity for students to utilize math, science, writing, reading and problem solving skills. The hike meets district requirements for physical education. This is an excellent opportunity for outdoor education and can be modified to fit just about any subject matter.

Participants need to pack a bag lunch, carry plenty of water and wear sturdy shoes. A backpack, bug spray, sunscreen, notebook, pen/pencil, camera, sweatshirt and a rain jacket are suggested items. There are no bathroom facilities and no cell service once we are on the trails. If you are serious about returning to this area for more exploration your own or with a group of children, you might consider bringing a GPS with you on this trip, to record the stopping points and locations of items of interest. This hike (mostly a woods walk) will start at the cul-de-sac at the end of Hemlock Lane. We will meet at 9:00 am. Due to time constraints, the group will leave the cul-de-sac at 9:15 and it will be impossible for you to find us once we set out. Please don't be late. We can only travel as quickly as the slowest member in the

group, so anticipate a return to the parking area around 1 pm, if we have a group of moderately healthy members. Senior citizens, young children and dogs on leashes are welcome but may find this trip taxing. The trip will be a 'go' drizzle or shine. If the ground is wet, please understand that fallen leaves are slippery and take the sturdy shoes requirement seriously. There are a couple of steep hills we need to climb. Elementary, middle, high, life science, earth/space science, physical science, environmental science, technology, history, math, language arts, physical education

Duration: This depends on the hiking ability and numbers in group. It could take anywhere between 4-6 hours. Starting time is 9 am.

Directions: Redstone, NH. We will meet and park in the cul-de-sac at the end of Hemlock Lane, in North Conway. This is located off of the North-South Road and situated between The Bike Shop and Chick Home Center/Wal-Mart. If you consult MAPQUEST, use Hemlock Lane, North Conway.

NHSTA FALL CONFERENCE SCHEDULE
Monday, October 25, 2010

7:00 - 3:00	Exhibits	Peregrine Falcon Room
Exhibits and pastries/beverages will be available in Peregrine Falcon Room		
7:00-8:30	Registration	Lobby
8:30-9:30	Session I Workshops	
9:30-10:45	Exhibits/Coffee Break	Peregrine Falcon Room
9:45-10:45	Session II Workshops	
10:15-10:30	Exhibits/Coffee Break	Peregrine Falcon Room
11:00-11:45	Keynote Speaker	Bull Moose Room
11:45-12:20	Luncheon	Bull Moose/American Black Bear rooms
12:30-1:30	Session III Workshops	
1:30-1:40	Exhibits/Coffee Break	Peregrine Falcon Room
1:40-2:40	Session IV Workshops	

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.

(MONDAY) SESSION I WORKSHOPS: 8:30 am – 9:30 am

1. The Carbon Cycle, A Building Block for Climate.

Room: Cougar

Content: LS, ES, EV, T

Format: H, DI, DE

Grade: High

Presenter: Sarah Silverberg, 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 hands-on 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).

2. Enhancing STEM Learning with Stop-Motion Animation. **Room:** American Black Bear

Content: LS, ES, PS, EV, T, A, LIT

Format: H

Grade: All

Presenter: Melissa Pickering, co-founder of iCreate to Educate and Brian Gravel, PhD Candidate Science Education, Tufts University

This interactive workshop provides educators with a first-hand experience in how to engage students of all ages in science, math, and engineering using stop-motion animation. SAM Animation, a stop-motion software developed by Tufts University researchers and designed specifically for schools, allows students to create tangible models of intangible concepts, particularly in science. By promoting this hands-on expression of ideas, stop-motion becomes a rich learning tool by simply combining a computer and webcam. Workshop attendees will: - Learn how other teachers have used stop-motion in the classroom - Create their own stop-motion animations - Discover the educational research supporting stop-motion. This workshop is repeated during Session III.

3. Preparing Tomorrow's Ecologists Today: Reading the Landscape Using the "ABCs of Ecology."

Room: Rainbow Trout

Content: LS, ES, EV, EC

Format: H, DI

Grade: E, M

Presenter: Meg K. Edstrom, Ferry Beach Ecology School

"Reading the Landscape" will serve to establish ecological concepts, practices and skills for emerging scientists through hands-on games and field ecology activities. Workshop content and methodology will serve as introduction for educators to engage students and individuals new to the field of ecology as well as a catalyst for more complex study.

4. Portable Demos.

Room: White Tailed Deer

Content: PS

Format: DE

Grade: M, H

Presenter: Bette Bridges, Retired Educator, Laboratory Safety Institute

Excite your classes, using demos which are portable from classroom to classroom, easy to set-up and take down, using everyday materials.

5. Using Hubbard Brook Data to Practice/prepare for NECAP Inquiry Assessment. **Room:** Canadian Lynx

Content: LS, EV

Format: DI

Grade: M, H

Presenter: Geoff Wilson, Hubbard Brook Research Foundation

Co-Presenter: Sarah Turtle, Hubbard Brook Research Foundation

The NECAP Inquiry Task is a challenging assessment that requires students to be skilled at reading scientific narratives, analyzing data, and using the scientific process. Preparing students for these tests requires time and real data. Educators at HBRF are developing practice questions and exercises that use real data sets collected at the Hubbard Brook Experimental Forest to develop these skills. We will explain how we are developing the tests, describe the data sets available, and seek participant's comments on how we can best fit their needs. Participants will receive copies of two of these practice questions for review and discussion.

6. Visual Tools: Making Science concepts easier to grasp and more engaging.

Room: Bull Moose

Content: LS, ES, PS, T, S

Format: DI, L

Grade: All

Presenter: Roger Essley, Scholastic Books-Author

Co-Presenter: Jon Moss, Portsmouth HS Science Teacher

Simple visuals have advanced science concepts, from Darwin's evolution trees to Feynman's diagrams. See how hands-on visuals can support students, making science content far more accessible. Presenters share their groundbreaking work adapting visual tools proven to dramatically increase reading comprehension and engage reluctant writers. We'll see how building simple visuals supports and focuses science discussion while helping students integrate content. We'll see exciting examples of students' visual work in kindergarten through advanced placement physics. Make your classroom more inclusive. As a middle school teacher said, "SEEING how visuals support all of my students was a EUREKA moment!" This workshop is repeated during Session IV.

7. Google Apps in Science Class.

Room: Gray Wolf

Content: T

Format: H

Grade: M, H

Presenter: Sarah Sutter, Wiscasset High School

Explore Google Apps, including Docs, Spreadsheets, Forms, Presentations and Sites through examples specific to science content and lessons. See how shared Docs can facilitate group lab reports, how forms allow for collaborative data collection and analysis, and how Sites can be used as a class portal to online resources or individual ePortfolios for students. Want to make a quick self-correcting quiz to spot check student understanding? Have students take collaborative notes on a lecture, demonstration or media presentation? Google Apps has the tools for all this and so much more!

8. OK Let's Do It – Sign Up For the EXPO. Workshop 1: How to Master the Paperwork Involved When Registering for the Expo.

Room: Fox Den

Content: T, EN

Format: DI, H

Grade: H

Presenter: Norma Bursaw, NHSEEA Past President

Co-Presenters: Maria Bechis, NHSEEA President Elect, Pat Gaudet, NHSEEA Treasurer.

You helped your students do the paperwork for the 2010 Expo, but, oh, what a nightmare that was for you! However, remember that it was the first time that this paperwork was done for NHSEEA since the association affiliated with the Intel/International Science and Engineering Fair. The process was new to us also! Well, help is on its way! NHSEEA is offering a workshop that will walk teachers step by step

through the registration process for the next EXPO, which will be held on Thursday, March 17, 2011. Answers to any and all pertinent questions about this process will be addressed during the workshop. Professional Development credits will be available for this workshop. For teachers grades 9-12.

9. NASA In The Classroom.

Content: ES

Format: L

Room: Owl's Nest (2nd Flr)

Grade: All

Presenter: Thomas Estill, NASA, Greenbelt, MD

This workshop will introduce K-12 teachers to the numerous and varied NASA teacher resources available to them when teaching STEM topics in their classrooms. At the conclusion of the workshop, teachers will receive a wealth of NASA ed. resources they can take back to the classroom with them.

(MONDAY) SESSION II WORKSHOPS: 9:45-10:45

1. Earth's Climate System.

Content: ES/EV

Format: DI/DE/H

Room: Cougar

Grade: M, H

Presenter: Marsha Rich, American Meteorological Society

Co-Presenter: Jim Hamilton, Londonderry Middle School

DataStreme Earth's Climate System (ECS) is the newest distance-learning course offered by the American Meteorological Society (AMS). The semester-long course examines climate, climate variability and climate change and incorporates inquiry-based instructional strategies. It is directed toward middle and high school teachers. Course work is completed primarily through the Internet, with three group meetings. Participants earn three graduate credits and the AMS provides the tuition and materials. This workshop is presented by the course facilitator and a past ECS participant. We will investigate the content and structure of ECS, complete one of the learning activities, and explore the course website.

2. Through the Eyes of a Scientist.

Content: ES, LIT

Format: DE

Room: American Black Bear

Grade: E, M

Presenter: Arthur Hammon, Ph.D., NASA/Jet Propulsion Laboratory

The NASA/Jet Propulsion Laboratory (JPL) has created a biographical education unit featuring space scientists. A free DVD featuring 12 JPL scientists includes video interviews with scientists and printable curricular materials integrating concepts in space science with the life and work of the scientists. Free DVD's will be distributed which may be copied and shared with colleagues. Dr. Hammon is a JPL program director for Through the Eyes of a Scientist.

3. Creating a Cohesive High School Science Curriculum.

Content: LS, ES, PS, A

Format: DI

Room: Rainbow Trout

Grade: H

Presenter: Katherine McCandless, Hillsboro-Deering High School.

Co-Presenter: Liz McNamara, Hillsboro-Deering High School

This workshop describes the process of aligning a high school science curriculum to the NH state standards, incorporating earth and space science standards into the core disciplines. Additionally, a discussion of the creation of competency-based delivery of curriculum will be included, as well as using performance-based assessments to improve student achievement.

4. Stoichiometry: Multi-tiered approaches to learning.

Content: PS

Format: DI, L

Room: White Tailed Deer

Grade: H

Presenter: Harvey Gendreau and Bette Bridges, Laboratory Safety Institute.

Stoichiometry can be a stumbling block to learning chemistry. High School students vary in their ability to conceptualize this basic construct. The authors (with over a combined 70 years of HS chemistry experience) will present some of their ideas on teaching stoichiometry to various types of learners.

5. Twenty-five Quick and Dirty Formative Assessment Strategies Modeled.

Content: A

Format: H

Room: Canadian Lynx

Grade: E, M

Presenter: Dr. Lynn Chandler, Franklin Pierce University.

In this hands-on, fast-paced, workshop, Dr. Lynn Chandler will model 25 formative assessment strategies applicable in any science classroom. The strategies come from a variety of texts including (but certainly not limited to) Page Keeley's Science Formative Assessment. Participants will get materials they can easily implement into the classroom next week! Nothing to buy!

6. Ready, Set, Go! Getting Weather Information Online.

Content: ES

Format: L

Room: Gray Wolf

Grade: M, H

Presenter: Stacie Hanes, National Weather Service

This workshop will look at a number of different weather systems which affect New Hampshire. In addition, we will navigate your local National Weather Service webpage and discuss the different options for finding weather data. We will cover how to look up text products, regional watches and warnings, current conditions including observations, radar imagery, and satellite imagery, as well as archived climate data. Of special interest will be the websites of the National Hurricane Center as well as the Storm Prediction Center. Finally, we will show some weather sites which can be used by students to learn more about the atmosphere.

7. Google Tools in the Classroom.

Content: T

Format: L, DI

Room: Bull Moose

Grade: M, H

Presenter: Kern Kelley, Regional School Unit #19.

This session focuses on the use of free Google Tools in the classroom. The purpose is to walk attendees through to examples on how to implement Google Apps within a classroom, school or district. If you are a teacher ready to start a class website or work toward a paperless classroom. A principal who wants to improve communication with your staff or a technology director ready to implement Google Apps throughout a district. This workshop will get you started in the right direction.

8. OK Let's Do It – Sign Up For the EXPO. Workshop 2: Where Do I Begin to Do an Independent Research Project?

Content: T, EN

Format: H, DI

Room: Fox Den

Grade: H

Presenter: Dick Feren, NHSEEA President and Gary Proehl, NHSEEA Director

Students may want to become involved doing independent research but they are not sure where to start, and you as the teacher might not be sure either. Well, help is on the way! NHSEEA is offering a workshop that will walk teachers and students step by step through the process of setting up an independent research project. Tips will be given on how to get started, about important dates that need to be met, about the forms that need to be filled out, and how to produce a quality poster. You won't want to miss this workshop. Professional Development credits will be available for this workshop. For both teachers and students.

4. What's The Matter? It's Just A Phase...

Content: PS, A

Format: H, DI, DE

Room: White Tailed Deer

Grade: E, M, H

Presenter: Michelle LaRue, A. Crosby Kennett Middle School

"Hooray! They FINALLY get it." Learn how to differentiate instruction and frame your phase change/states of matter unit so that your students truly understand what these basic ideas are all about. You'll play charades, role play outside in groups and use the kids' ideas to create an assessment that reflects just how deep their understanding goes. We'll also preview Molecular Workbench. Handouts & activity materials provided.

5. Enhancing STEM Learning with Stop-Motion Animation.

Content: LS, ES, PS, EV, T,
A, LIT

Format: H

Room: American Black Bear

Content: LS, ES, PS, EV, T,
A, LIT

Presenter: Melissa Pickering, co-founder of iCreate to Educate and Brian Gravel, PhD Candidate Science Education, Tufts University

This interactive workshop provides educators with a first-hand experience in how to engage students of all ages in science, math, and engineering using stop-motion animation. SAM Animation, a stop-motion software developed by Tufts University researchers and designed specifically for schools, allows students to create tangible models of intangible concepts, particularly in science. By promoting this hands-on expression of ideas, stop-motion becomes a rich learning tool by simply combining a computer and webcam. Workshop attendees will: - Learn how other teachers have used stop-motion in the classroom - Create their own stop-motion animations - Discover the educational research supporting stop-motion. This workshop is repeated during Session I.

6. Becoming Wolf: Eastern Coyote in New England

Content: EV, LS

Format: DI, L

Room: Gray Wolf

Grade: M, H

Presenter: Chris Schadler, Spaulding High School

The wolf (*Canis lupus*), extirpated 100 years ago, is trying to return to New England. The eastern coyote (*Canis latrans*, var.) inhabits our landscape by the thousands, and brings with it the DNA of the wolf we thought was gone. While the eastern coyote grows larger, learns to hunt in packs and expresses ever more of its wolf ancestry, two types of wolves migrate from Canada to reclaim New England. Learn the ecology of these two predators that will soon be living cheek by hawl with one another in our woods. Curriculum development material and a half hour video will be available after the talk. This workshop is repeated in Session IV.

7. Creating Videos to Demonstrate Learning

Content: T

Format: DI, L, H

Room: Bull Moose

Grade: All

Presenter: Richard Byrne

With nothing more than an internet connected computer your students can create videos. In this workshop attendees will learn about and try a variety of free, web-based tools that students can use to create videos. Attendees will also learn how to locate copyright friendly images and sounds. (Bring Your Own Laptop).

8. The Tropical Connection.

Content: EV, LS

Format: L

Room: Fox Den

Grade: H

Presenter: Cliff Lerner, Keene HS and Keene State College

The realm of the tropics presents a wonderful opportunity to explore the diversity of life on earth. Delving into this unique environment will provoke your curiosity and increase your awareness of a

critical environment. It should also provide a framework to understand some of the major themes in biology (natural selection, speciation, symbiosis, energy flow etc.). I will present studies that we have done in Belize over the last 20 years and provide information that could help other teachers offer similar programs in their own schools.

(MONDAY) SESSION IV: 1:40-2:40

1. The 7-year Journey of the MESSENGER Space Mission: 2004 through Orbit Insertion, mid-March, 2011. **Room:** Cougar

Content: ES **Format:** H, DI, DE **Grade:** E, M

Presenter: Sally Jean Jensen, NASA MESSENGER Educator Fellow.

Participants will receive content information on the planet, Mercury, its historical explorations, and the current mission goals. The Educational Modules will also be reviewed as to how these can impact your science teaching of Earth and Space concepts. These modules are standards-based to facilitate inquiry methods. Participants will receive handouts of this information and sample lessons. Sally Jean Jensen, both A MESSENGER and New Horizons Educator Fellow, will give out information packets on the education modules and for future workshops.

2. The Evidence Box (+ other ideas for a forensic science class). **Room:** American Black Bear

Content: LIT, PS **Format:** DI, DE **Grade:** H

Presenter: Judy Rubin, Keene High School.

As a way of tying together literacy and forensic science, we created a project called "The Evidence Box." Students choose a book and then develop a visual and engaging way to share the book and present information on a forensic science related topic.

3. Discovery Based Science Learning: SPARK Science for K-8. **Room:** Rainbow Trout

Content: LS, T **Format:** DE **Grade:** E, M

Presenter: Dot Brown, PASCO Scientific

This 60-minute session explores PASCO's state-of-the-art science teaching solutions to address the toughest aspects of Elementary and Middle School science investigations. In this hands-on workshop, you will experience standards-based SPARK lab activities from PASCO's new SPARK interface. Be one of the first to see how the SPARKscience™ will enhance your teaching practice and improve student understanding of your core topics. **Commercial workshop**

4. MESA Monadnock Environmental Study Academy. **Room:** White Tailed Deer

Content: EV **Format:** DI, L **Grade:** H

Presenter: Thomas Sintros, Keene School District + the Sustainability Project.

MESA – Monadnock Environmental Studies Academy. Developed from a Christa McAuliffe Sabbatical Award project PLACE (Public Lands Adoption and Community Education) and a federal schools of choice/school reform funded project, MESA is a model for an alternative approach for any level of school and any community. It will also address suggestions, strategies, etc. for the new environmental literacy movement in the state and country. MESA goes beyond service learning by designing curriculum that completely intertwines with the region in which students live and shows how they can influence real change while embracing an exciting, meaningful way to apply their learning. Eight various course offerings along with real case studies will be the focus of this presentation. A new national grant program, Model Forest Policy Program (MFPP) offered by the Climate Solutions University will also be part of this workshop, with the potential of schools to receive 2010-2011 Grant funding. An

environmental thread weaves through all aspects of curriculum, one that was embraced at a symposium at William College as well as others around the country. Time for discussion will emphasize specific strategies for the successful implementation of this model at each community. Please come with questions, concerns and be prepared to offer a verbal profile of your school/community.

5. Becoming Wolf: Eastern Coyote in New England

Room: Gray Wolf

Content: EV, LS

Format: DI, L

Content: EV, LS

Presenter: Chris Schadler, Spaulding High School

The wolf (*Canis lupus*), extirpated 100 years ago, is trying to return to New England. The eastern coyote (*Canis latrans*, var.) inhabits our landscape by the thousands, and brings with it the DNA of the wolf we thought was gone. While the eastern coyote grows larger, learns to hunt in packs and expresses ever more of its wolf ancestry, two types of wolves migrate from Canada to reclaim New England. Learn the ecology of these two predators that will soon be living cheek by howl with one another in our woods. Curriculum development material and a half hour video will be available after the talk. This workshop is repeated in Session III.

6. The Maury Project: Exploring the Physical Foundations of Oceanography.

Room: Canadian Lynx

Content: LS, EV, ES

Format: H, DI, L

Grade: M, H

Presenter: "Ranger" Rick Harding, The Maury Project.

"Ranger" Rick Harding will be leading a training session on Density-driven Ocean Circulation that draws on his experience working with the NOAA and U.S Naval Academy Scientists during the 2010 Summer session of the Maury Project at the US Naval Academy in Annapolis, Maryland this past July. Included in this training session will be a discussion of how the BP Oil Spill has impacted ocean life and the response of the oceanographic community in monitoring and ameliorating this disaster. The Maury Project is a two-week workshop designed for master pre-college teachers who teach or supervise the teaching of units with significant oceanographic content. Participants receive a stipend as well as transportation to the US Naval Academy and room and board during the workshop. Teachers who are interested in applying for the 2011 session should make every attempt to attend this workshop.

7. Intertidal Zonation Inquiries.

Room: Fox Den

Content: LS

Format: L

Grade: M, H

Presenter: Hal Weeks, Shoals Marine Laboratory

A trip to a rocky shoreline at low tide offers opportunities for observing intertidal zonation, exploration and discussion of the physical and biological processes that create these patterns, and class data collection and analysis projects. Repeat visits can readily lead to inquiry-based projects.

8. Bringing eCYBERMISSION To Your School.

Room: Owls Nest (2nd Flr)

Content: LS, PS, ES, EV, T, EN

Format: DI, L, DE

Grade: M, H

Presenter: Micah Kleid, eCYBERMISSION

eCYBERMISSION is the U.S. Army's free, web-based, science, technology, engineering and math (STEM) competition for students in grades six through nine. It gives students the opportunity to work in teams and compete for awards while using the scientific method to solve problems in their communities. Every year, 96 winning teams from across the nation are chosen, with each student eligible to receive between \$2,000 and \$8,000 in U.S. Savings Bonds. The top 16 teams are then given the opportunity to compete for first place national awards during the National Judging & Educational Event (NJ&EE), held in the Baltimore-Washington Metropolitan Area.

9. Visual Tools: Making Science concepts easier to grasp and more engaging. **Room:** Bull

Moose

Content: LS, ES, PS, T, S

Format: DI, L

Grade: All

Presenter: Roger Essley, Scholastic Books-Author

Co-Presenter: Jon Moss, Portsmouth HS Science Teacher

Simple visuals have advanced science concepts, from Darwin's evolution trees to Feynman's diagrams. See how hands-on visuals can support students, making science content far more accessible. Presenters share their groundbreaking work adapting visual tools proven to dramatically increase reading comprehension and engage reluctant writers. We'll see how building simple visuals supports and focuses science discussion while helping students integrate content. We'll see exciting examples of students' visual work in kindergarten through advanced placement physics. Make your classroom more inclusive. As a middle school teacher said, "SEEING how visuals support all of my students was a EUREKA moment!" This workshop is repeated from Session I.

EXHIBITORS (at time of publishing)

It's About Time. It's About Time publishes middle and high school inquiry-based, project-based programs, primarily funded through the National Science Foundation. These programs were developed by educators and scientists whose goal was to prepare our students with the skills for the 21st century. www.its-about-time.com Connie Anick: cmanick@herffjones.com 508-259-0133

Connecticut Valley Biological. Connecticut Valley Biological is your neighbor in Massachusetts! We specialize in living cultures and specimens. Including: Protozoa, Invertebrates, Vertebrates, Marine, Algae, Bacteriological and Mycological Cultures. In addition, we offer a wide range of supplies for science classroom and laboratories for all levels. Included are: Plants, Horticultural Supplies, Aquaria and Terraria, Small Animal Supplies, Human Physiology, Preserved Plants, Preserved Specimens, Dissecting Supplies, Skeletons, Anthropology, Models, Biological Displays, Lab Activities, Forensics, Charts and Posters, Microscopes and Accessories, Microscope Slides, Microtechniques Supplies, Labware, Nature Studies, Books, Software, and kits/supplies to assist in teaching all areas of Life Science, as well as biochemistry, Earth Science, Environmental Science and AP Biology. Same day shipping available on in-stock items: order before noon; receive your order the next day in New Hampshire. jbeluzo@ctvalleybio.com www.ctvalleybio.com

Frey Scientific. Frey Scientific offers a complete line of lab equipment, supplies, and technology products for K-12 science classrooms and labs, including Inquiry Investigation and software from Neo/SCI.

Houghton Mifflin Harcourt

Ferry Beach Ecology School. Ferry Beach Ecology School, a nonprofit residential science program located on the southern coast of Maine, teaches science and ecology education to over 6,000 students, adults & educators a year using an interdisciplinary, hands-on approach. The FBES mission is fostering stewardship for the Earth by educating youth and adults in the science of ecology and the practice of sustainable living.

eCYBERMISSION. eCYBERMISSION is the U.S. Army's free, web-based, science, technology, engineering and math (STEM) competition for students in grades six through nine. It gives students the opportunity to work in teams and compete for awards while using the scientific method to solve problems in their communities. Every year, 96 winning teams from across the nation are chosen, with each student eligible to receive between \$2,000 and \$8,000 in U.S. Savings Bonds. The top 16 teams are then given the

opportunity to compete for first place national awards during the National Judging & Educational Event (NJ&EE), held in the Baltimore-Washington Metropolitan Area. www.ecybermission.com missioncontrol@ecybermission.com

The Alliance for Climate Education. The Alliance for Climate Education (ACE) is a national nonprofit dedicated to educating America's high school students about the science behind climate change and inspiring them to do something about it—while having fun along the way. Described by students and teachers as “the best presentation ever,” ACE’s no-cost, exciting multimedia presentation educates students about climate change science and inspires them to take action. ACE educators build on the presentation to activate students by giving them free resources to set up a school Action Team. Learn more and watch the assembly trailer at www.acespace.org. For more information or to book a presentation at your school, contact Rouwenna Lamm (rouwenna.lamm@climateeducation.org).

Invent Now Kids, Inc. www.invent.org.

Keypress.com. Living By Chemistry. Designed to encourage all students to learn real chemistry, Living By Chemistry is a full-year high school curriculum that meets and exceeds state and national standards. Developed as a National Science Foundation project, Living By Chemistry is the product of a decade of research and development in high school classrooms. Extensive field-testing shows that students of all ability levels perform better with Living By Chemistry. Living By Chemistry is aligned to the Benchmarks for Scientific Literacy, the National Science Educational Standards, and the National Physical Science Standards. www.keypress.com Contact: sreinhardt@keypress.com

Mount Washington Observatory: The Mount Washington Observatory, located atop New England's highest mountain peak, is dedicated to observing, understanding, and educating others about our weather and atmosphere. Through a variety of interactive educational programs, we can bring the excitement and wonder of Mount Washington directly to your classroom! For more information, visit our website: www.mountwashington.org.

Shoals Marine Laboratory. Shoals Marine Laboratory is a summer field station dedicated to education and research in the marine sciences. The Lab is operated jointly by Cornell University and the University of New Hampshire, and offers approximately twenty courses for college credit during the summer season, along with several internship programs and non-credit offerings.

Squam Lakes Natural Science Center. Squam Lakes Natural Science Center is a non-profit environmental education organization founded in 1966. The Science Center's mission is to advance understanding of ecology by exploring New Hampshire's natural world. Using the outdoors as a classroom and live native New Hampshire animals as teaching ambassadors, our programs and exhibits teach the ecological concepts of adaptations, populations, interrelationships, and habitats in meaningful and memorable ways. At our 200-acre natural site in Holderness, visitors may tour three miles of self-guided trails from May 1 to November 1 featuring: 1) the 3/4-mile Gephart Exhibit Trail displaying native wildlife in woodland enclosures and buildings with hands-on interactive exhibits; 2) the Ecotone Trail, a 2/3-mile track along a forest and field edge; 3) the Mt. Fayal Trail, a 1-mile loop to the top of a small mountain with a view of Squam Lake; and 4) the Forest Trail, a 2/3-mile trail demonstrating forest management and ecology. Kirkwood Gardens, showing how plants attract birds and butterflies, is free to the public. Staff naturalists present natural history programs year-round ranging from lake ecology cruises, to outdoor activities, to indoor live animal presentations. www.nhnature.org

PASCO Scientific: Learn how to prepare your students for a 21st Century science education using 21st Century science methods and tools like our SPARK Science Learning System. Contact: sales@pasco.com www.pasco.com

CPO Science: CPO Science provides Teaching and Learning systems, Hands-on equipment and Supplemental Curriculum for grades 8-12. www.cposcience.com. CPO Science has the only inquiry-based hands on science programs that include a student textbook, teachers guide, student investigation manual and FREE high quality equipment.

UNH Marine Docent Program: The UNH Marine Docent Programs utilizes well-trained volunteers to deliver marine education programs to preK - 12 and adult audiences. The UNH Marine Docent Program provides low cost, but high quality, in-school and field programs in marine science. The Docents are highly trained volunteers who can provide highly engaging hands-on programs in such topics as the Rocky Shore, Marine Mammals, and many others. Visit our Web site at www.unh.edu/marine-education for more information.

Heinemann Publishers: Heinemann is a publisher of professional resources and a provider of educational services for teachers, kindergarten through college. We strive to give voice to those who share our respect for the professionalism and compassion of teachers and who support teachers' efforts to help children become literate, empathetic, knowledgeable citizens.

Pearson Education: Pearson Prentice Hall is a publisher of 6-12 science textbooks and both digital and print support materials. Check out our new Middle School Science, Biology and Conceptual Integrated Science.

Coastal Studies for Girls: Coastal Studies for Girls is the country's only residential science and leadership semester school for 10th grade girls. CSG is dedicated to girls who have a love for learning and discovery, an adventurous spirit, and a desire to challenge themselves. www.coastalstudiesforgirls.org

ANNOUNCEMENTS

- **Directions: Attitash Grand Summit Hotel and Conference Center.**

Physical Address: Attitash, Route 302, Bartlett, NH 03812.

1. Route 93 North to Exit 35, US Route 3 North (exit to the right after you exit Franconia Notch). Follow Route 3 North for 10.3 miles to Twin Mountain. At a stop light, turn right onto US Route 302 East. Follow 302 East for about 24 miles. You will drive by the Mount Washington Hotel, through Crawford Notch, and through Bartlett Village. Approximately 1.5 miles after Bartlett Village, the entrance to Bear Peak and the Attitash Grand Summit Hotel will be on your right. Stay right around the Bear Peak parking lot (the hotel is not visible yet), follow sign - take right @ front of parking lot to proceed to hotel. (Approximately 78 miles from exit 23).

2. Route 93 North to Exit 23 onto Rt.104. Follow Route 104 until 3rd set of lights. Take a left at lights into Meredith Village. Take a right at the lights onto Route 25 East. Follow Route 25 East to Route 16 North. Follow Route 16 North into Conway Village. At the third light in Conway Village take a left, following Route 16 North. Follow Route 16 North into Glen, NH. Proceeding Straight, go through the light in Glen onto Route 302 West (Route 16 goes to the right). Follow Route 302 West 3 miles the Attitash Base Lodge will be on your left. For the Attitash Grand Summit Hotel: Proceed 7/10 of a mile past Attitash Base Lodge. The Attitash Grand Summit Hotel and Conference Center is on the left at the Bear Peak Entrance. Stay right around the Bear Peak parking lot (the hotel is not visible yet), follow sign - take right @ front of parking lot to proceed to hotel. (Approximately 57 miles from exit 23).

3. From Conway, Follow Route 16 North into Glen, NH. Proceeding Straight, go through the light in Glen onto Route 302 West (Route 16 goes to the right). Follow Route 302 West 3 miles the Attitash Base Lodge will be on your left. For the Attitash Grand Summit Hotel: Proceed 7/10 of a mile past Attitash Base Lodge. The Attitash Grand Summit Hotel and Conference Center is on the left at the Bear Peak Entrance. Stay right around the Bear Peak parking lot (the hotel is not visible yet), follow sign - take right @ front of parking lot to proceed to hotel.

- 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.
- Check the NHSTA web site for updates on the conference: www.NHSTA.net

**NHSTA Fall Conference Registration Form, Attitash Grand Summit Hotel, Bartlett NH
October 24, 2009-October 25, 2010**

Name: _____

E-mail: _____ Telephone: _____

Home Address: Street: _____ City: _____ State: _____ Zip: _____

School: _____

Work Address: Street: _____ City: _____ State: _____ Zip: _____

Name: _____

E-mail: _____ Telephone: _____

Home Address: Street: _____ City: _____ State: _____ Zip: _____

School: _____

Work Address: Street: _____ City: _____ State: _____ Zip: _____

Name: _____

E-mail: _____ Telephone: _____

Home Address: Street: _____ City: _____ State: _____ Zip: _____

School: _____

Work Address: Street: _____ City: _____ State: _____ Zip: _____

Name: _____

E-mail: _____ Telephone: _____

Home Address: Street: _____ City: _____ State: _____ Zip: _____

School: _____

Work Address: Street: _____ City: _____ State: _____ Zip: _____

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 form below and mail it in with conference registration.

	Early Bird Registration (postmarked by 9/25)		Pre-Registration (postmarked by 10/16)		Onsite/Late Registration (after 10/16)		Subtotal
***Sunday (10/24) (All Field Trips must be pre- registered) (write your choice below)	Members	Nonmembers (includes membership)	Members	Nonmembers (includes membership)	Members	Nonmembers (includes membership)	
	\$75	\$100	\$100	\$125	\$125	\$150	
Monday (10/25)	\$100	\$125	\$125	\$150	\$150	\$175	
Full Conference (See the field trip note above)	\$150	\$200	\$200	\$250	\$275	\$325	
Special Pricing for Full Conference: Students, Retired, or Spouse					\$75		
Make checks and POs payable to NHSTA					TOTAL ENCLOSED: _____		
Field Trip Choice (for Sunday Only and Full Conference) _____							
<u>Mail registration form and check (or PO) to:</u> NHSTA, PO Box 583, Littleton, NH 03561			REGISTER AND PAY ONLINE AT WWW.NHSTA.NET E-mail: nhsta@togetether.net Phone: 603-659-2622				
For Housing, call Attitash at 1-800-223-7669. Special rates of \$99/night. Affiliation with NHSTA must be mentioned at time of booking.							

NHSTA Membership Form

Name: _____

E-mail: _____ Telephone: _____

Home Address: Street: _____ City: _____ State: _____ Zip: _____

School: _____

Work Address: Street: _____ City: _____ State: _____ Zip: _____

Grade Level Taught: _____ **Subject Taught:** _____

Type of Membership:

- New Member** **\$20**
- Renewing Member** **\$20**
- School Membership** **\$200 (1-10 teachers)** **\$250 (11-20 teachers)** **\$300 (21 + teachers)**
- Student** **complimentary**
- Retired** **complimentary**
- First Year NH Teacher** **complimentary**

Payment: Make checks and POs payable to NHSTA and mail to: NHSTA, PO Box 583, Littleton, NH 03561

Credit Card #: _____ Exp. Date: _____