



# New Hampshire Science Teachers' Association

## Summer Newsletter (E-Edition), 2011

NHSTA Newsletter Editor: Paul Williams

*Volume 7, Issue 3*

*Summer 2011*

**NHSTA Fall Conference to be held at Church Landing, Meredith, New Hampshire on Sunday and Monday, October 23<sup>rd</sup> and 24<sup>th</sup>, 2011** by Steve Roberts, Fall Conference Chair, NHSTA First Vice-President

Dear Members,

Save the dates for a celebration of science education on Sunday, October 23<sup>rd</sup> and Monday, October 24<sup>th</sup>, 2011. We are in the final planning stages of what is going to be an amazing two day conference. Sunday is a field trip day with over ten marvelous adventures to choose from. The early evening will be spent with an exhibitor reception followed by what will be a true celebration with Atlas Fireworks demonstrating the science of fireworks. On Monday we will be using three of the inns in Meredith, NH to have over 36 workshops covering all grades and subjects. We will finish the conference with an incredible hot luncheon where you can relax and network.

The head quarters 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. Hope to see you in Meredith, Steve Roberts, NHSTA Ω





## NHSTA Board of Directors, 2011/2012 (Officers newly elected)



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**President** – Leslie McRobie, Somersworth Middle School

**1st Vice-President/2011 Fall Conference Chair** - Steve Roberts, Inter-Lakes School, Middle Tier

**2nd Vice-President/2012 Spring Conference Chair** - Mark Parsons, Inter-lakes High School

**Treasurer** - Patrick Dorcus, Winchester School

**Secretary**– Rachel Christensen, Londonderry Middle School

**Director-at-Large Executive Board Representative** - Heather Brunelle, Lurgio Middle School

**Immediate Past President** – Amy Rockwell, Lurgio Middle School

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Brewster Bartlett, Pinkerton Academy

Jeff Bergeron, Mount Prospect Academy

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Cheryl Patty, Westmoreland School

Robert Schroeder, Swasey Central School

R. Scott Semmens, Westmoreland School

**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 changed:** 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.*

## Results of NHSTA 2011-2012 Election

**President** – Leslie McRobie, Somersworth Middle School

**1st Vice-President/2011 Fall Conference Chair** - Steve Roberts, Inter-Lakes School, Middle Tier

**2nd Vice-President/2012 Spring Conference**

**Chair** - Mark Parsons, Inter-lakes High School

**Treasurer** - Patrick Dorcus, Winchester School

**Secretary**– Rachel Christensen, Londonderry Middle School

**Director-at-Large Executive Board Representative**

- Heather Brunelle, Lurgio Middle School

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## Something A Little Different - Newsletter and Dues !! By Paul Williams, NHSTA

**Newsletter.** Like everyone else (your school systems, the State of NH, the Federal Government) we at NHSTA are on a tight budget. So—we're trying something a little different a digital newsletter. Personally, I've been against this! However, I may be changing my mind... I can see that this isn't that hard to do - I think we might even be able to publish this monthly rather than quarterly (getting information to our membership faster). Negatives: you actually have to click the link and go to the web site and read it on-line. We'll keep an eye on how well this goes!

**Dues.** By now you may know that we have hired the company Cvent to help us keep our database and do our e-mailings, conferences, and workshops. They provide us with a great way to keep our data-

base and e-mailings together. And enable us to use credit cards as a payment option. Concurrently with Cvent, we went to a monthly membership renewal (rather than a once-a-year like in the past). A problem that arose was getting the renewal info to everyone. We used to send a request for renewal once a year (in the fall). Lately, we have been putting your renewal date on your mailing label (which probably didn't work very well!!).

So, another new thing: you may have already received a renewal notice as an e-mail as your membership approaches renewal (or you may be about to receive one!). We are hoping this will be a convenient way for everyone to keep their membership current. Ω

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## Boston Bruins I Can Excel (I.C.E.) School, submitted by Cathlin Allen, Boston Bruins

Are you looking for a free and exciting way to teach your students?

I.C.E. School is a program that offers free lesson plans to teachers that incorporate hockey and the Boston Bruins into curriculum for grade levels kindergarten to 6th grade. The I.C.E. School program launched in 2009 in Massachusetts with great success. Currently there are over 900 teachers incorporating I.C.E. School lesson plans into their classrooms.

Lesson plans are now available for New Hampshire. All lesson plans fit into the New Hampshire curriculum framework and were developed by a group of New Hampshire teachers at an event held at Southern New Hampshire University.

Students who complete the lesson plans will receive a completion certificate signed by a Bruins player and have the chance to win a visit to the classroom by Blades, the Bruins mascot, and the Boston Bruins Ice Girls. Teachers who participate in Bruins I.C.E. School have the opportunity to receive Bruins prizes including autographed merchandise and a Blades classroom visit. Sign up by visiting [www.bostonbruins.com/iceschool](http://www.bostonbruins.com/iceschool). The Boston Bruins are committed to growing this program in the state of New Hampshire. If you are a teacher who is interested in being part of the I.C.E. School New Hampshire Development committee, please email Cathlin Allen at [callen@bostonbruins.com](mailto:callen@bostonbruins.com) for more information. Committee members are asked to attend two meetings at TD Garden this summer to create additional lesson plans for New Hampshire.

Cathlin Allen, Community Relations Coordinator, Boston Bruins, 100 Legends Way, Boston, MA 02114-1303 617-624-1923 (office), 617-523-7184 (fax). Ω

## **David Kelly, Pembroke Academy Awarded the 2011 Christa McAuliffe Sabbatical.**

David's project for the upcoming school year is to create robotic competitions throughout the state for middle school and high school students. In order to do this, he plans on providing free training to teachers and students through a variety of formats, a Summer Institute August 17th & 18<sup>th</sup> at Pembroke Academy, after school on-site workshops, and in-school field trip days. The training will cover basic robot construction, sensors, and programming, as well as how to generate revenues to fund a team. He hopes to work with local civics clubs - (Rotary, Kiwanis, etc.) and businesses to have them adopt a school, plus he is looking at some of New Hampshire's larger businesses to create some grant opportunities, he also has some fail-proof fund raisers. In addition, he will be building a web page that will be focused on building robots, generating revenue for teams, and, running competitions.

The competitions will be part of the VEX Robotics Competition program. which uses the VEX design system <http://www.vexrobotics.com/> - with starter systems starting at \$420, For under \$1000 a very competitive robot can be built that the parts can be reused year after year. The VEX Robotics Competitions are overseen by Robot Events <http://robotevents.com/> which promotes all robotics competitions and has seen their VEX Robotics Competition grow in 4 years from 150 teams and 1 event to over 3800 teams and over 300 events. Their student-focused events have truly caught on. As part of being registered with the VEX Robotics Competition, teams can attend the New Hampshire events, or any of the other 300+ events and qualify for the championship, which this year was held at the ESPN facility at the Disney complex in Orlando, FL. Also, the VEX robotics system will be introduced into the Project Lead-the-Way curriculum this year, is used in the TSA (Technology Students Association) competitions, and is an option in the Boy Scouts of America's new robotics merit badge.

At present, he has three competitions planned for next year, the Granite State Regional (Convenient for Southern NH teams) October 22, 2011 at Trinity High School. The Central NH Regional at Belmont High School in November date TBA (convenient to Central, NH teams), and The New Hampshire Championship December 3<sup>rd</sup> at Pembroke Academy. He is hoping to find people and locations interested a North Country Regional, a Seacoast Regional, a CT River Valley Regional and a Northern New England Invitational during the months of January through April. By offering a variety of events, hopefully teams will be able to attend multiple events and improve their robots between events. Ω

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**Science Sleuths:**  
***Inquiry-based Science, Technology and Literacy***  
**MERRIMACK RIVER REGION 2011 MITS Summer Institute**  
***Museum Institute for Teaching Science***

For a full brochure or to register: Visit our website [www.mits.org/summer\\_institute.htm](http://www.mits.org/summer_institute.htm)

Email: [mits@mits.org](mailto:mits@mits.org)

Call: 617-328-1515

Registration Deadline: June 10th

*Call for availability after deadline*

**July 11 - 22, 2011** (10 Days, Monday - Friday)

*For Elementary & Middle School Educators*

**Cost: \$250/1 educator; \$225 each/team of 2 educators; \$200 each/team of 3 or more educators**

Graduate Credit will be offered from Salem State College (4 Credits/\$315) and Cambridge College (4 Credits/\$200)

*Summer Institutes are offered in six regions of Massachusetts and Southern New Hampshire*

Journey with us as we explore the Merrimack River Watershed and discover the diversity of life and natural cycles in this ever changing ecosystem. We will share a unique literary piece each day and discover how to connect science and literacy in meaningful ways for students. Become a dragon fly hunter along the shores of the Merrimack. Have a seat in a wild place, the Ponemah Bog. Investigate succession in a forest, field and wetland. Get a close-up look at vernal pools and examine forest soil decomposers. Identify the biotic life on, in and around stone walls. Learn about the ants of Snake Hill. Climb Mt. Wachusett. Visit Walden Pond, walking in Thoreau's footsteps. Was he a science sleuth, a poet or both? Learn how to use science notebooking as an inquiry tool for daily reflections, data analysis and evaluation, student writing, debate and exchange of ideas. Through our investigations and literacy connections, you will discover new ways to facilitate these connections in your classroom.

### **A Unique Professional Development Opportunity**

- Participate in a balance of classroom and outdoor field experiences.
- Learn to use inquiry-based, hands-on methods in your classroom.
- Visit each site for 2 days and participate in both content and skill development sessions.
- Learn about educational resources in your community.
- Experience inquiry-based investigations linked to the Massachusetts Curriculum Frameworks.
- Earn PDPs/ CEUs or PDPs and 4 graduate credits (for an additional cost).
- Take home a resource kit containing investigations and materials for your classroom.

MITS, Inc. 1354 Hancock Street Suite 302 Quincy, MA 02169 Ph: 617-328-1515 Fax: 617-328-1516

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*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>

## **Finding Planets among the Stars.** By Dr. Tony Phillips

Strange but true: When it comes to finding new extra-solar planets, or exoplanets, stars can be an incredible nuisance. It's a matter of luminosity. Stars are bright, but their planets are not. Indeed, when an astronomer peers across light years to find a distant Earth-like world, what he often finds instead is an annoying glare. The light of the star itself makes the star's dim planetary system nearly impossible to see. Talk about frustration! How would *you* like to be an astronomer who's constantly vexed by stars?

Fortunately, there may be a solution. It comes from NASA's Galaxy Evolution Explorer, an ultraviolet space telescope orbiting Earth since 2003. In a new study, researchers say the Galaxy Evolution Explorer is able to pinpoint dim stars that might not badly outshine their own planets.

"We've discovered a new technique of using ultraviolet light to search for young, low-mass stars near the Earth," said David Rodriguez, a graduate student of astronomy at UCLA, and the study's lead author. "These M-class stars, also known as red dwarfs, make excellent targets for future direct imaging of exoplanets." Young red dwarfs produce a telltale glow in the ultraviolet part of the electromagnetic spectrum that Galaxy Evolution Explorer can sense. Because dwarf stars are so numerous—as a class, they account for more than two-thirds of the stars in the galaxy—astronomers could reap a rich bounty of targets.

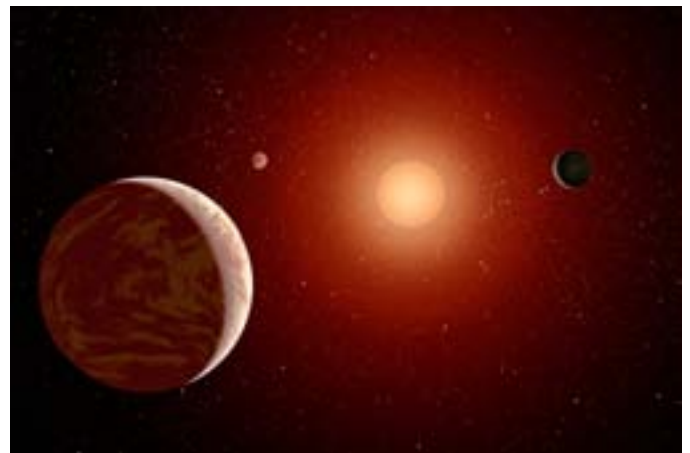
In many ways, these stars represent a best-case scenario for planet hunting. They are close and in clear lines-of-sight, which generally makes viewing easier. Their low mass means they are dimmer than heavier stars, so their light is less likely to mask the feeble light of a planet. And because they are young, their planets are freshly formed, and thus warmer and brighter than older planetary bodies.

Astronomers know of more than five hundred distant planets, but very few have actually been seen. Many exoplanets are detected indirectly by means of their "wobbles"—the gravitational tugs they exert on their central stars. Some are found when they transit the parent star, momentarily dimming the glare, but not dimming it enough to reveal the planet itself.

The new Galaxy Evolution Explorer technique might eventually lead to planets that can be seen directly. That would be good because, as Rodriguez points out, "seeing is believing."

And it just might make astronomers feel a little better about the stars.

The Galaxy Evolution Explorer Web site at <http://www.galex.caltech.edu> describes many of the other discoveries and accomplishments of this mission. And for kids, how do astronomers know how far away a star or galaxy is? Play "How Old do I Look" on The Space Place at <http://spaceplace.nasa.gov/whats-older> and find out!



*Exoplanets are easier to see directly when their star is a dim, red dwarf.*

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

## Spring Wild Edibles Workshop

The Little Nature Museum, 656 Gould Hill Road, Contoocook will offer a "**Spring Wild Edibles**" workshop on **June 25th (raindate, June 26) from 1 PM - 2 PM** with outdoor expert, Rudy Bourget. Join us for a walk around the orchard and through the woods. Learn how to identify common wild edible plants and prepare them. Learn safety rules for plant collecting as well as environmental and conservation issues related to this fun hobby. **Preregistration is required; enrollment is limited to 15. Minimum age is 11; with an adult, the minimum age is 9.** Cost is \$7 for museum members; \$10 for nonmembers. **Call 603-746-6121 to register.** For more information, [www.littlenaturemuseum.org](http://www.littlenaturemuseum.org).

Rudy Bourget has taught survival skills at the Museum for the past four seasons and he has studied primitive outdoor and wilderness survival skills for over 40 years.



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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

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**Useful Information from Flinn Scientific, Inc.** P.O. Box 219, Batavia, IL 60510, 1-800-452-1261, E-mail: [flinn@flinnsci.com](mailto:flinn@flinnsci.com), Web site: [www.flinnsci.com](http://www.flinnsci.com)

### **Free Online Safety Training Videos for Science Teachers**

Flinn Scientific's highly regarded safety training is now available to all science teachers—everywhere and anytime—absolutely free on the Flinn Web site at [www.flinnsci.com](http://www.flinnsci.com).

The critical safety information every high school and middle school science teacher needs to know is covered: liability, right-to-know laws, personal protective equipment, MSDS requirements and so much more. The videos are efficiently organized in concise chapters for easy viewing.

Discover how Flinn's safety training will give all science teachers the confidence and knowledge to improve laboratory safety:

- Comprehensive Safety Training—10 Major Topics, Over 40 Videos
- Maximum Convenience—Available online 24/7
- Get Flinn Certified in Safety by Taking Online Assessments
- Free Professional Development Opportunities

No Fees! It's All Free!

Teachers have the option of viewing individual videos or following a course sequence and completing online assessments to receive certification. All science teachers can be "Flinn Certified in Safety." Additional free videos covering the following topics are also available: Laboratory Design, Safety and the Law, and Cleaning the Chemical Storeroom.

**To begin your free safety training go to [flinnsci.com](http://flinnsci.com) and click on "Free Online Laboratory Safety Training"**

### **New Advanced Biology Study Kits and Review Material**

AP Biology teachers can now help their students be better prepared for the AP Biology Exam with Flinn Scientific's expanded offering of Advanced Biology study kits and review material.

Four new kits just introduced are:

#### **Structure and Function: AP Biology Review Demo Kit**

Use the three demonstrations in this kit to cement student understanding of the connection between structure and function, a major theme in the essay portion of the AP exam. (FB1981, \$75.50)

#### **Mitosis and Meiosis Study Set**

A comprehensive and informative cell division study set containing prepared microscope slides, overhead transparencies, and detailed student worksheets. (ML1434, \$69.95)

#### **Counting Crossing Over—*Sordaria* Genetics Student Laboratory Kit**

This completely reusable simulation kit is a great alternative to conducting the full *Sordaria* genetics laboratory (FB1973, \$15.45)

#### **Caution! Mold Crossing Ahead—*Sordaria* Genetics Student Laboratory Kit**

Students cross wild type and mutant strains of *Sordaria fimicola* and then collect, prepare, count, and calculate from their own cross plates. (FB2001, \$75.00)

To learn more about these and additional AP Biology kits and new review materials including preparation guides, books, and flash cards see pages 694–705 in the *2011 Flinn Science Catalog Reference Manual* and online at [flinnsci.com](http://flinnsci.com).

**Free Online Safety Training Courses for Science Teachers from Flinn Scientific. Get *Flinn Certified in Safety* This Summer!**

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### **Laboratory Design Videos Free Online at [www.flinnsci.com](http://www.flinnsci.com)**

Designing and renovating school science laboratories just got easier for teachers and administrators. Flinn Scientific's new, free Laboratory Design Videos can help simplify the process--while helping you save time and money.

For more than 30 years Flinn has assisted schools with their lab design projects. Now Flinn introduces an online Laboratory Design Course consisting of 12 free videos related to planning, designing, and outfitting science labs. Topics include: Setting Design Priorities, Space Requirements, Basic Safety Equipment, Ventilation, Chemical Storage Areas, and more.

Whether you are building a new lab or redesigning an existing lab, Flinn Scientific can help. Teachers are also invited to request a free Laboratory Design Packet and to contact Flinn's Lab Design Specialist for free advice. The information you need to design a safe and efficient science learning environment is available from Flinn Scientific.

To view Flinn's free Laboratory Design Videos: **Go to [www.flinnsci.com](http://www.flinnsci.com)**. Click "Free Online Laboratory Safety Training" Then click "Laboratory Design Course"

### **Chemistry Teachers Can Earn Graduate Credit Online**

Illinois State University offers online, graduate-level chemistry courses for high school chemistry teachers. The courses, which use Flinn Scientific's Teaching Chemistry Video Series as a core component, are designed to advance professional goals and enhance chemistry-teaching skills.

These graduate level courses will enable chemistry teachers to:

- Earn 2 or 3 graduate credit hours per course from Illinois State University
- Set their own learning schedules
- Connect content knowledge to demonstrations and activities
- Save money. In-state tuition rates apply. Study at home without spending money on travel, food, and lodging.

Registration details for the summer courses will be available later this spring on the Flinn Scientific Web site at <http://elearning.flinnsci.com/EarnGraduateCredit.aspx>

Flinn will also e-mail more information to chemistry teachers when details about the summer courses become available.

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

## **Thank Goodness the Sun is Single.** By Trudy E. Bell

It's a good thing the Sun is single. According to new research, Sun-like stars in close double-star systems "can be okay for a few billion years—but then they go bad," says Jeremy Drake of the Harvard-Smithsonian Astrophysical Observatory in Cambridge, Mass.

How bad? According to data from NASA's Spitzer Space Telescope, close binary stars can destroy their planets along with any life. Drake and four colleagues reported the results in the September 10, 2010, issue of *The Astrophysical Journal Letters*.

Our Sun, about 864,000 miles across, rotates on its axis once in 24.5 days. "Three billion years ago, roughly when bacteria evolved on Earth, the Sun rotated in only 5 days," explains Drake. Its rotation rate has been gradually slowing because the solar wind gets tangled up in the solar magnetic field, and acts as a brake.

But some sun-like stars occur in close pairs only a few million miles apart. That's only about five times the diameter of each star—so close the stars are gravitationally distorted. They are actually elongated toward each other. They also interact tidally, keeping just one face toward the other, as the Moon does toward Earth.

Such a close binary is "a built-in time bomb," Drake declares. The continuous loss of mass from the two stars via solar wind carries away some of the double-star system's angular momentum, causing the two stars to spiral inward toward each other, orbiting faster and faster as the distance shrinks. When each star's rotation period on its axis is the same as its orbital period around the other, the pair effectively rotates as a single body in just 3 or 4 days.

Then, watch out! Such fast spinning intensifies the magnetic dynamo inside each star. The stars "generate bigger, stronger 'star spots' 5 to 10 percent the size of the star—so big they can be detected from Earth," Drake says. "The stars also interact magnetically very violently, shooting out monster flares."

Worst of all, the decreasing distance between the two stars "changes the gravitational resonances of the planetary system," Drake continued, destabilizing the orbits of any planets circling the pair. Planets may so strongly perturbed they are sent into collision paths. As they repeatedly slam into each other, they shatter into red-hot asteroid-sized bodies, killing any life. In as short as a century, the repeated collisions pulverize the planets into a ring of warm dust.

The infrared glow from this pulverized debris is what Spitzer has seen in some self-destructing star systems. Drake and his colleagues now want to examine a much bigger sample of binaries to see just how bad double star systems really are.



*Planetary collisions such as shown in this artist's rendering could be quite common in binary star systems where the stars are very close*

They're already sure of one thing: "We're glad the Sun is single!"

Read more about these findings at the NASA Spitzer site at [www.spitzer.caltech.edu/news/1182-ssc2010-07-Pulverized-Planet-Dust-May-Lie-Around-Double-Stars](http://www.spitzer.caltech.edu/news/1182-ssc2010-07-Pulverized-Planet-Dust-May-Lie-Around-Double-Stars). For kids, the Spitzer Concentration game shows a big collection of memorable (if you're good at the game) images from the Spitzer Space Telescope. Visit [spaceplace.nasa.gov/en/kids/spitzer/concentration/](http://spaceplace.nasa.gov/en/kids/spitzer/concentration/).

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

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## **Two award-winning websites for kids have joined forces to further inspire a new generation of explorers.** Laura K. Lincoln, on behalf of the Space Place Team.

NASA's [science.nasa.gov/kids](http://science.nasa.gov/kids) and [spaceplace.nasa.gov](http://spaceplace.nasa.gov) have combined to provide several new Web features with interactive graphic design and easy, versatile navigation. The new site includes the extensive and rich science and technology content of the 'old' Space Place with over 50 NASA science missions enriched with content from [science.nasa.gov/kids](http://science.nasa.gov/kids). These sites offer the best of NASA material for elementary school students.

The site includes over 300 separate modules available in English and Spanish. Modules are sorted into menus for Space, Earth, Sun, Solar System, People and Technology, and Parents and Teachers. Information mirrors the missions of the NASA's Science Mission Directorate, as well as the agency's commitment to education and public engagement.

Visitors can filter the menus on subject or type of activity (game, hands-on project, or exploration) and use the search field to produce customized menus. All pages are printer friendly.

The site is available at <http://science.nasa.gov/kids> or <http://spaceplace.nasa.gov>. Ω

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## **The 72nd NEACT Summer Conference**

### **In honor of the International Year of Chemistry, IYC: Chemistry in Today's World**

Submitted by Barbara Lamont

Will feature the four topics of the IYC: Health, Environment, Energy, and Materials, as well as lots on teaching and learning them!

August 1--4, 2011

St. Joseph's College, Standish, Maine

Program: <http://www.neact.org/NEACT%202011%20Summer%20Conference%20Program.pdf>

Registration Form: <http://www.neact.org/Registration%20Form%202011.docx>

Financial aid is available, some for new and some for in-service teachers.

Included are four Lyman C. Newell grants, sponsored by the Northeastern Section of the American Chemical Society [NESACS]. To be considered for any award, please submit the scholarship application:

<http://www.neact.org/Application%20for%20Summer%20Conference%20Scholarshipb.docx>

Questions? Call or e-mail Kathy at: 401-885-1608 or [kathys5@cox.net](mailto:kathys5@cox.net) Ω



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

### Milky Way Safari. by Dauna Coulter and Dr. Tony Phillips

Safari, anyone? Citizen scientists are invited to join a hunt through the galaxy. As a volunteer for Zooniverse's Milky Way Project, you'll track down exotic creatures like mysterious gas bubbles, twisted green knots of dust and gas, and the notorious "red fuzzies."

"The project began about four months ago," says astrophysicist Robert Simpson of Oxford University. "Already, more than 18,000 people are scouting the Milky Way for these quarry."

The volunteers have been scrutinizing infrared images of the Milky Way's inner regions gathered by NASA's Spitzer Space Telescope. Spitzer's high resolution in infrared helps it pierce the cloaking haze of interstellar gas and dust, revealing strange and beautiful structures invisible to conventional telescopes. The Milky Way Project is helping astronomers catalogue these intriguing features, map our galaxy, and plan future research.

"Participants use drawing tools to flag the objects," explains Simpson. "So far they've made over a million drawings and classified over 300,000 images."

Scientists are especially interested in bubble-like objects believed to represent areas of active star formation. "Every bubble signifies hundreds to thousands of young, hot stars. Our volunteers have circled almost 300,000 bubble candidates, and counting," he says.



*Volunteers study infrared images of our galaxy from the Spitzer Space Telescope, identifying interesting features using the special tools of the Milky Way Project, part of the Citizen Science Alliance Zooniverse web site.*

Humans are better at this than computers. Computer searches turn up only the objects precisely defined in a program, missing the ones that don't fit a specified mold. A computer would, for example, overlook partial bubbles and those that are skewed into unusual shapes.

"People are more flexible. They tend to pick out patterns computers don't pick up and find things that just look interesting. They're less precise, but very complementary to computer searches, making it less likely we'll miss structures that deserve a closer look. And just the sheer numbers of eyes on the prize mean more comprehensive coverage."

Along the way the project scientists distill the volunteers' data to eliminate repetitive finds (such as different people spotting the same bubbles) and other distortions.

The project's main site (<http://www.milkywayproject.org>) includes links to a blog and a site called Milky Way Talk. Here “hunters” can post comments, chat about images they've found, tag the ones they consider especially intriguing, vote for their favorite images (see the winners at <http://talk.milkywayproject.org/collections/CMWS00002u>), and more.

Zooniverse invites public participation in science missions both to garner interest in science and to help scientists achieve their goals. More than 400,000 volunteers are involved in their projects at the moment. If you want to help with the Milky Way Project, visit the site, take the tutorial, and ... happy hunting!

You can get a preview some of the bubbles at Spitzer’s own web site, <http://www.spitzer.caltech.edu/>. Kids will enjoy looking for bubbles in space pictures while playing the Spitzer concentration game at <http://spaceplace.nasa.gov/spitzer-concentration/>.

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

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## **Final Shuttle mission educational resources from Cindy McArthur of JSC’s Teaching From Space Office. Submitted by Thomas Estill, NASA**

1. In commemoration of the 30<sup>th</sup> Anniversary of the Space Shuttle Program, NASA, the National Institute of Aerospace and USA TODAY invite students, ages 9-17, to participate in the NASA Space Shuttle Art Competition by creating an original artwork that reflects the impact of the Space Shuttle program on our planet and in our lives. As a component of the *Because It Flew* (BIF) program students are asked to submit an individual artwork with a 250-word essay explaining their artistic entries. The submissions will be reviewed by an expert panel of artists and the top six entries will receive a cash prize, a private tutoring session with an accomplished USA TODAY graphic artist, and a certificate of accomplishment. The deadline for submission is August 5, 2011. BIF also offers teachers, sponsors, and parents an opportunity to engage their students with FREE educational activities and online NASA resources that allows students to discover the scientific and technological advances that have emerged *Because It Flew*. Encourage students and children to explore the history of the Space Shuttle Program, upload their photo and submit their artwork and essay! For more information on the NASA Space Shuttle Art Competition and to download free educational materials visit the site at:

[www.usatodayeducate.com/becauseitflew](http://www.usatodayeducate.com/becauseitflew)

2. Students can get the Space Shuttle experience and discover even more about the Space Shuttle Program's accomplishments, what it takes to launch a shuttle, astronaut living, how the program affects life daily here on Earth and much more through the Space Shuttle Experience website! The site offers many interactive features including trivia games with Facebook score sharing, a poll for users to vote on the program's greatest achievement and a virtual signature wall which gives users the opportunity to leave a personal message to the program. The Space Shuttle Experience site also includes lesson plans for educators. <http://shuttleexperience.nasa.gov>

3. Additionally, the successful Face in Space website now allows the public to upload their face or name for the final STS-135 mission. Upon completion of the mission, participants will receive a personalized flight certificate signed by the mission commander! The mission is scheduled for a July 8<sup>th</sup> launch so you still have time! <https://faceinspace.nasa.gov>

Please direct questions to Cindy at: [cynthia.l.mcarthur@nasa.gov](mailto:cynthia.l.mcarthur@nasa.gov) ...or visit the Teaching From Space website at: [www.nasa.gov/education/tfs](http://www.nasa.gov/education/tfs) Ω

***Migratory Birds Math and Science Lessons now available from the Hubbard Brook Research Foundation- free of charge!*** Submitted by Jackie Wilson, Hubbard Brook

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, the lessons combine information about local migratory bird species gleaned from research at the Hubbard Brook Experimental Forest with the methods scientists use to study them. In addition to nine science and math lessons for grades 7 through 12, also included are slide shows that explore Neotropical migratory birds and the methods used to study them as well as additional resources for teachers, students, and parents. Some lessons are introductory while others deal with specific data and studies from Hubbard Brook. It is our hope that this lesson set will both generate interest in ecology and support students' development in solid inquiry skills.

When you have a moment, we invite you to take a look: <http://hubbardbrookfoundation.org/>

Click on the Education and Outreach tab on the top menu bar, then:

→ Middle and High School → Classroom Resources → Migratory Birds

You will be asked to register first, but it's a quick and easy process. For more information, please contact Jackie Wilson ([jwtilson@hbresearchfoundation.org](mailto:jwtilson@hbresearchfoundation.org)).

*This resource is available free of charge thanks to the generous support of the USDA-Forest Service and the National Science Foundation's Schoolyard Long-term Ecological Research Program.* Ω

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**Richard Clipston Sturgis Harding Jr.** <http://www.legacy.com/obituaries/fosters/obituary-print.aspx?n=richard-clipston-sturgis-harding&pid=149362294>

PORTSMOUTH — Richard Clipston Sturgis Harding Jr., 64, beloved husband, father, teacher, mentor and coach, passed away in his wife's arms on the evening of March 14, 2011, at Hyder Family Hospice in Dover, exactly one month after being diagnosed with lung cancer.

"Ranger" Rick Harding, or "Doc," as some students called him, was born Jan. 27, 1947, in Boston, Mass., to Barbara Smith Harding and Richard C.S. Harding Sr. He grew up in Dedham and attended the Dedham Country Day School, where he had his own father as a teacher.

Rick was a 1966 graduate and former trustee of the Dublin School in Dublin, and a 1970 graduate of the University of New Hampshire. An extraordinary and gifted naturalist and educator, for over 40 years he taught students of all ages, in public and private schools, colleges, camps, clubs and summer programs. Rick touched the lives of countless students with his infectious enthusiasm, immense kindness and his belief in the value of an individual. He was a passionate outdoorsman and experiential educator who, when asked what he taught, would answer, "Kids, mostly."

During his long career he taught at the Brown Elementary and the Rupert A. Nock Middle Schools in Newburyport, Mass., Pembroke Elementary School, the Dedham Country Day School, The Derryfield School, Winnacunnet Regional High School and the Longview School. Rick taught at Derryfield for 15 years, during which time he founded the crew program. One of Rick's favorite sayings was, "Just remember, there is no such thing as inclement weather, only inappropriate clothing."

Rick is survived by his wife, Linda and sons, Andrew, Alec, and Robin of Portsmouth, Joshua and his wife, Nicole, of Lindenhurst, Ill.; daughter, Amy Harding Hanlon and her husband, Christian, of San Francisco, Calif.; his father, Richard C. S. Harding Sr. of Durham; sisters, Susan Harding Colby of Locust Grove, Va., and Nancy Harding Hathaway of Crofton, Md., and three grandchildren, Gabriel and Ava Harding of Lindenhurst, Ill., and Eleni Grace Hanlon of San Francisco.

A Memorial Service for Rick will be held on Saturday, March 19, at 11 a.m. at St. George's Episcopal Church, 1 Park Court, Durham.

In lieu of flowers, donations in Rick's memory may be made to the Derryfield School, Rick Harding Memorial Fund, 2108 River Rd., Manchester, NH 03104. **Published in Fosters from March 16 to March 17, 2011** Ω

## 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, Summer, 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.