

# CONNECTICUT SCIENCE CONNECTION

AUGUST 21, 2007 ISSUE

THE CONNECTICUT BUILDING A PRESENCE FOR SCIENCE NETWORK IS SUSTAINED THROUGH A GRANT FROM BRISTOL-MYERS SQUIBB AND THE ADVOCACY OF THE CONNECTICUT ACADEMY FOR EDUCATION

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NAMES AND E-MAIL ADDRESSES OF OUR POINTS OF CONTACT AND KEY LEADERS ARE NOT SHARED WITH ANY OTHER ENTITY

**MATERIAL™**  
**ADVANTAGE**  
The ACerS-ASM-TMS Student Program

*Everything Else Is Immaterial*

The UConn Material Advantage (UCMA) society is made up of engineering students from several disciplines interested in sparking scientific inspiration in kids in CT schools. Each year they develop a Materials Quiz that focuses on the achievements of Connecticut scientists and engineers at CT companies and send it out to teachers. They are also offering teachers the opportunity to have them come into their classrooms and do presentations or help with longer experiments as well. Details can be found at:

<http://www.cssaonline.net/UCMAQuiz&CL2007.doc>

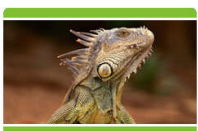
## Hisss-terical Reptile Show"

**Live! Outdoors! Three**

**shows daily!** These cold-blooded ambassadors slither their way into your heart and mind,

leaving behind a hard shell of knowledge and giving you a really fun time!

<http://www.maritimeaquarium.or/index.html> . Full season calendar can be seen at: [www.cssaonline.net/MaritimeCenterevents.docx](http://www.cssaonline.net/MaritimeCenterevents.docx)



## MONSANTO INVITATION!

The Monsanto Research Center in Mystic will be having an Open House on Saturday, September 8th, from 9:00 a.m. until 12:00 noon. The Mystic Research Center is a premiere laboratory and greenhouse facility focusing on plant biotechnology for the improvement of agricultural products. There will be guided tours of the facility, research demonstrations, children's activities, and a really fun and educational corn maze. Tours are also available in Spanish. Admission is FREE!

The Research Center is located at 62 Maritime Drive in Mystic, CT. Follow Interstate-95 to Exit 90. Next, follow Route 27 South and at the light by Friendly's, go left onto Coogan Blvd (towards the Aquarium). Stay on Coogan Blvd. and turn right onto Maritime Drive, which is the first road past the Mystic Hilton. The Monsanto Mystic Research Center is the second building on the right. We hope to see you there!

Take Action: Tell Congress to Support Including Environmental Education in NCLB

[http://www.democracyinaction.org/dia/organizationsORG/cel/campaign.jsp?campaign\\_KEY=7147](http://www.democracyinaction.org/dia/organizationsORG/cel/campaign.jsp?campaign_KEY=7147)

Looking for a Science Position? Check out openings at: [www.cssaonline.net/employmentopportunities.htm](http://www.cssaonline.net/employmentopportunities.htm)



at The Learning Corridor

## Greater Hartford Academy of Math and Science (GHAMAS)

will be holding its annual professional development conference for middle/ high school math and science teachers on Tuesday, Nov 6, 2007. Currently, GHAMAS is looking for presenters that would like to present a two hour session in math or science. If you are interested, please email Rachael Manzer [rmanzer@crec.org](mailto:rmanzer@crec.org)



**THE FOLLOWING MATERIAL COMES FROM THE STATE DEPARTMENT OF EDUCATION AND IS INTENDED TO ASSIST EDUCATORS IN IMPLEMENTING THE FRAMEWORKS:**

**From Liz Buttner at the State Department of Education:**

In response to numerous requests for information about kit-based curriculum units that are aligned with the content and inquiry skills in Connecticut's science framework, please see the attached documents:

**(NEW)** Kit Matrix 4-6: includes published learning units for ALL content standards in Grades 4-6

Kit Matrix-ES: includes published learning units only for Earth Science (originally sent on June 19)

Inquiry Learning Materials: includes contact info for publishers reps for all kits shown on the matrix (originally sent on June 19)

Please keep in mind that this is not an exhaustive list of all available instructional materials, nor should it be interpreted as an endorsement of any of the products or publishers included on the list. Also, note that nationally-developed and researched learning units have many advantages over those that are locally developed (teacher manuals, supplies, on-line support, etc.), but none of them are "perfect". They are, however, a good foundation which can be supplemented with other learning materials and experiences.

Connecticut's Department of Environment Protection has an excellent education division with a wealth of materials for teaching concepts in the 2004 Core Science Curriculum Framework. Below are links to some examples:

[Educator Resources](#) – teacher workshops, school outreach programs, class field trips

[Environmental Science Curriculum Materials](#) – air/water quality, climate change, CT wildlife, recycling/composting, Long Island Sound and CT waterways

[Curricula](#) – information and teacher workshops for Project Wet, Project Wild, Project Aquatic Wild, Project Learning Tree, Food-Land-People, BirdSleuth, Project SEARCH, etc.

If you're looking for engaging ideas for teaching students about the design process and the forces at work in different bridge designs...

Attached is a "mini-unit" from a Prentice-Hall technology education program called "Learning By Design". In addition, below are several more **great resources** that have everything you need to engage students in exploring the "ups and downs" of BEAM, TRUSS, ARCH and SUSPENSION bridges:

1. The National Building Museum has a very nice unit about the tension and compression forces involved in various bridge designs; complete with experiments, books, websites, etc. Here is the link to print out the teacher's guide and learning unit (no cost) [http://www.nbm.org/Education/Educator/Bridges\\_ERPacket.pdf](http://www.nbm.org/Education/Educator/Bridges_ERPacket.pdf). A bridges curriculum materials kit is also available for \$100: <http://www.nbm.org/Education/bridgeBasics/bridgeBasics.html>.
2. The US Military Academy offers free bridge design software and a cool contest for international middle school students! <http://bridgecontest.usma.edu/purpose.htm>
3. PBS/Nova has a great episode called "Super Bridge" available for viewing, along with this companion website with teacher's guide, bridge information, on-line simulation game, etc. <http://www.pbs.org/wgbh/nova/bridge/>
4. PBS has another excellent site that includes a bridge forces on-line lab in which students can vary the tension and compression forces applied to different materials: <http://www.pbs.org/wgbh/buildingbig/bridge/>

Have fun with your students learning about the design process (and how it differs from the scientific method). Maybe you can send me photos of your fledgling engineers in action!

I've been receiving questions about the new elementary and middle school science CMTs to be administered to 5th and 8th grade students beginning in March 2008. These are both cumulative tests,

and I want to be sure that everyone knows what content and processes will be assessed and how the tests will be structured. I've summarized this information below, and attached the CMT Blueprints as well as a sample page from the soon-to-be-released "Grade-Level Expectations".

The content that is tested on the elementary and middle school Science CMTs is listed in the Science Framework:

Elementary Science Knowledge: Framework Expected Performances B.1 through B.25  
Elementary Inquiry Processes: Framework Expected Performances BINQ.1 through BINQ.10

Middle School Science Knowledge: Framework Expected Performances C.1 through C.30  
Middle School Inquiry Processes: Framework Expected Performances CINQ.1 through CINQ.10

The CMT Science Handbook, once it is available, will restate these same assessment expectations. The CMT Handbook will also include the test blueprint (see attached), the curriculum-embedded performance tasks (available at [www.ct.gov/sde](http://www.ct.gov/sde)) and sample test questions (once they are available after the first test administration). To access banks of sample test items quite similar to the CMT, I highly recommend using the NAEP Questions Tool found at [www.nces.ed.gov/nationsreportcard/ITMRLS](http://www.nces.ed.gov/nationsreportcard/ITMRLS) <<http://www.nces.ed.gov/nationsreportcard/ITMRLS>> and the TIMSS bank of released items available at [www.timss.bc.edu/timss2003i/released](http://www.timss.bc.edu/timss2003i/released) <<http://www.timss.bc.edu/timss2003i/released>>. Information about how to use the NAEP Questions Tool website is available at CSDE's Student Assessment website under "National Tests". <http://www.cssaonline.net/SDEinfo/CMTBlueprints588.doc>, <http://www.cssaonline.net/SDEinfo/GLE3.3sample.doc>, <http://www.cssaonline.net/SDEinfo/InquiryLearningMaterials.doc>, <http://www.cssaonline.net/SDEinfo/KitMatrix4-6.doc>, <http://www.cssaonline.net/SDEinfo/KitMatrix-EarthSci.doc>



**NASA OPPORTUNITIES:** To find out all of the opportunities offered by NASA for Educators and their students, go this this link: <http://www.nasa.gov/audience/foreducators/topnav/actnow/>. For the most recent offerings, go to: [www.cssaonline.net/NASAnews.doc](http://www.cssaonline.net/NASAnews.doc)



The DNA EpiCenter is pleased to announce that the following positions are now open:

- ❖ **Director of Educational Programs**
- ❖ **Staff Scientist**
- ❖ **Director of Development.**

Please contact Abby Demars [ademars@dnaepicenter.org](mailto:ademars@dnaepicenter.org) to learn details of the job requirements. Salaries will be commensurate with experience. These are year-round, full-time positions offering a benefits package. The positions will remain open until qualified candidates are hired.



**Opportunity for Science Educators Doing Environmental Work:** Since 1993, the Anheuser-Busch Adventure Parks have recognized the outstanding efforts of K–12 students and teachers across the country who work at the grassroots level to protect and preserve the environment. [The SeaWorld/Busch Gardens/Fujifilm Environmental Excellence Awards](#) provides school and community groups with a monetary award, national recognition, and some well-deserved fun at one of the adventure parks. Eight winning groups are selected each year to win \$10,000. One environmental educator/leader each year receives \$5,000. The deadline for applications is November

30, 2007. For information about how you, your school, or a student group could win both money and recognition, visit the link above or call toll-free (877) 792-4332.

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### **Bioethics Curriculum Seeking High School Biology Field Test Teachers for Spring Semester 2008:**

Funded by the National Institutes of Health, the Center for Applied Ethics and the Center for Science Education at Education Development Center are collaborating on the development of a bioethics curriculum that can serve as a supplement to high school biology classes.

The overall purpose of the project is to prepare high school students to consider the consequences of developments in the life sciences by providing them with the skills and critical tools to make well-informed personal decisions and participate thoughtfully in forging public policies about scientific and ethical issues related to new knowledge and new technology. Although the curriculum is in the process of being written, the content of the lessons currently proposed consist of the following: What Is Bioethics?, Vaccination, Organ Transplants, Genetic Testing, Modification of the Natural World, and Research Ethics. The proposed lessons are being written with alignment to the following standards in mind: the National Science Education Standards, the National Assessment of Educational Progress, and the American Association for the Advancement of Science, upon which many states base their own science standards. The Bioethics project will provide all student books, teacher's guides, and evaluation materials to those teachers selected to participate in the field test. **Application Deadline: September 30, 2007**. Teacher Characteristics: New or experienced high school science teachers, with or without prior Bioethics teaching experience, preferably teaching 2 or more biology classes during the Spring 2008 semester are welcome. Level of commitment:

- Teaching 1 or more bioethics lessons (each lesson will take 2-3 class periods) to 1 HS class
- Providing curriculum evaluators with information on teacher and student usability of the materials, as well as on student engagement and responsiveness .

For Additional Information Contact: Erica Jablonski, M.A., Center for Science Education, Education Development Center, [ejablonski@edc.org](mailto:ejablonski@edc.org) or 617-618-2552

**In an attempt to keep the CSC at readable length, the following links will allow you to access offerings in Previous Issues (Return to Table of Contents)**

<http://www.cssaonline.net/CSCAug7.pdf>  
<http://www.cssaonline.net/CSCJuly10.pdf>  
<http://www.cssaonline.net/CSCJuly24.pdf>



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## STUDENT OPPORTUNITIES!

Registration for the Pete Conrad Spirit of Innovation Award is now open. This award is a national competition for students age 13 to 18. Within the next two months, student teams must develop their own innovative concept to benefit the personal spaceflight industry in 50 year's timeframe. Teams will compile their concept into three documents: a technical document, a business/marketing document, and a graphical representation. Finalists will be brought to the Wirefly X PRIZE Cup to display their concept to the public. Awards include \$9000 in prize money, travel grants to attend the Wirefly X PRIZE Cup, inclusion on a national traveling museum exhibit, rocket trophies, and the unique opportunity to connect students directly with commercial companies in the personal spaceflight industry.

Further details are listed on [www.xprizecup.com](http://www.xprizecup.com)  
[http://space.xprize.org:80/x-prize-cup/conrad\\_award/](http://space.xprize.org:80/x-prize-cup/conrad_award/)

**NASA'S ENGINEERING DESIGN CHALLENGE: PLANT GROWTH CHAMBERS:** During the 2007-2008 school year, join NASA's Engineering Design Challenge to design, analyze, build, and assess plant growth chambers as part of a standards-based activity related to the STS-118 space shuttle mission. Growth chambers much like the space plant chambers students will design and build are part of the education payload on STS-118. The first Educator Astronaut, Barbara Morgan, and her fellow crewmates will take up two growth chambers along with 10 million basil seeds. These seeds will be exposed to microgravity and brought back to Earth to be used in classrooms throughout the nation. After students build their own growth chambers, teachers will receive actual Space Seeds that can be used along with other Earth Seeds to test the design. Space Seeds are available on a limited basis to educators who register and complete the challenge with their classes. [Click here](#) for more information and to register. The site also provides lesson guides, classroom extensions, teaching tips, assessment guidelines, and an educator career corner. Teachers can also receive updates on Education activities NASA is offering at [www.nasa.gov/education](http://www.nasa.gov/education).



**REGISTRATION OPEN FOR NTEN FALL SEMESTER:** The National Teachers Enhancement Network (NTEN) is ready to meet your professional development goals this fall. Registration is now open. Teachers can choose among 10 online courses in eight disciplines, including astronomy, evolution, Earth science, environmental science, oceanography, soil science, weather, and physics. [See more.](#)

### VSP VISION CARE "VISION OF SCIENCE" AWARD NOW AVAILABLE TO K-12 SCIENCE EDUCATORS:

NSTA is pleased to announce that K-12 science educators will now be eligible to receive the VSP Vision Care "Vision of Science" Award, previously only available to K-8 science teachers. The award recognizes and honors one outstanding classroom science teacher who has developed creative and inventive science lessons that encourage students to learn and understand eye health and vision. The winning teacher will receive a one-year membership to NSTA, a check for \$2,000, and an additional check for \$500 to be used toward travel expenses to attend the NSTA National Conference on Science Education. Additionally, the winning teacher's school will receive a check for \$3,000 to be used exclusively toward furthering the study, teaching, and learning of eye health and vision. To download an application for this award, go to <http://www.nsta.org/pdfs/awards/VSP.pdf>. The deadline for applications is October 15, 2007. [See more.](#)

**SCIENCECOMPLIANCE** is a new science resource for K-8 schools provided by AccuWeather Education. They are searching for consultants to write and review lesson plans aligned to national and state K-8 science standards. Work would require approximately 10-35 hours per week with average hourly pay @ \$25/hour. Lesson plans follow a designated structure: lesson description, objectives, background information, classroom activities, duration, a description of necessary graphics, applicable worksheets, and a short quiz. Content topics are comprehensive in scope, covering Astronomy, Biology, Earth Science, Forces & Energy, et al.

**Required Skills & Experience:** \* Science teaching experience, \* Familiarity with K-8 standards, \* Excellent writing ability, \* Ability to write or edit content under strict deadlines, \* Proficiency using the Internet, \* Background in curriculum development is preferred. Please Reply to Mary Beth Toczek at [Toczek@AccuWeather.com](mailto:Toczek@AccuWeather.com)  
<http://education.accuweather.com>

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ARE YOU INVOLVED IN CURRICULUM DESIGN? Useful curriculum design archives may be found at:  
[http://www.curriculumdesigners.com/index.php?Path=Public/\[03\]%20Resources/\[07\]%20Conference%20Archive](http://www.curriculumdesigners.com/index.php?Path=Public/[03]%20Resources/[07]%20Conference%20Archive)



Applications are now available for educators interested in joining NASA Explorer Schools during the 2008-2009 school year. Schools from the 50 states, the District of Columbia, Puerto Rico and the Virgin Islands may apply for the NES 2008-2009 school year. NES offers unique opportunities designed to engage and educate the future scientists who may someday advance U.S. scientific interests through space exploration. Teams composed of full-time teachers and a school administrator develop and implement a three-year action plan to address local challenges in science, technology and mathematics education for grades 4-9. Schools that are selected are eligible to receive funding during the three-year partnership to purchase technology tools. The project also provides educators and students with content-specific activities that can be used within the curricula to excite students about science, technology, engineering, and math. Applications are due **Jan. 31, 2008**. For more information, visit

<http://explorerschools.nasa.gov/portal/site/nes/menuitem.3a9dc5f6e0302a448258f708c41a5ea0/>

**Ready When You Are — **FOR FREE!** You're teaching a subject for the first time, or for the first time in a long time. You need a content refresher *now*. Where can you find help that's engaging, high-quality, easy to access—and affordable, too? From NSTA's latest ready resource: Science Objects! With support from sponsors, including [NASA](#), [NOAA](#), [FDA](#), [the NHTSA](#), [the Hewlett Foundation](#), and [the GE Foundation](#), Science Objects provide all teachers of science open access to these valuable new resources—at no cost! [\[Learn More\]](#)**

**Free for All from NSTA:** NSTA offers many resources and services at no charge; some are available only to NSTA members, but many are available to all. To read about what NSTA has to offer, visit <http://science.nsta.org/enewsletter/2007-06/high.htm>.



**The NSTA New Science Teacher Academy**, co-founded by the Amgen Foundation with a three-year, \$3 million grant, is a professional development initiative created to help strengthen quality science teaching, enhance teacher confidence and classroom excellence, and improve teacher content knowledge. The Academy will initially support up to 200 science teachers across the nation each year. There are two tiers of participation in the New Science Teacher Academy, NSTA Fellows and NSTA Associate Fellows. Both fellowship programs will include a year-long immersion in a host of science-related activities and professional development opportunities. In addition, NSTA Fellows and Associate Fellows will receive a comprehensive NSTA membership package and financial support to attend and participate in NSTA's National Conference on Science Education. <http://www.nsta.org/academy/>



In support of **Earth Science Week 2007 (October 14-20)**, the American Geological Institute (AGI) is publishing its "The Pulse of Earth Science" Toolkit. This year's Toolkit, includes a new edition of its popular Earth Science Calendar filled with activities and important geoscientific dates. These activities, engage students in learning about the earth sciences. The U.S. Geological Survey (USGS) has provided both "Facts on Disc," a CD-ROM which includes all of the USGS fact sheets from the last twelve years and the brochure "USGS Education Resources for Teachers." The Toolkits also contain materials from NASA including the CD-ROM "Exploring Ice" and an "Earth and Space Explorers Series" poster. ESRI has provided a copy of its "GIS Solutions for Education" CD-ROM. NOAA is also providing information on student opportunities and careers within the earth sciences. In collaboration with the National Park Service, AGI has published the "Volcanoes in the National Parks" poster. This poster, which is included in the 2007 Toolkit, describes with stunning visuals the volcanoes one can visit while touring the National Parks of America. **The Toolkit can be pre-ordered now. Shipping will begin in early August.** Individual kits are available for the cost of shipping and handling (\$6.95 in the United States). Bulk

pricing is available. Visit <http://www.earthsciweek.org/materials/index.html> to order the 2007 Earth Science Week Toolkit.. To learn more about this event, please visit <http://www.earthsciweek.org/>.

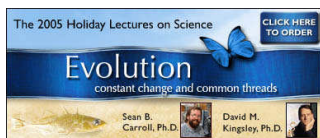
**FOR OUR HIGHER EDUCATION READERS... WANT TO EXPERIENCE HYPERGRAVITY?:** NASA's Reduced Gravity Student Flight Opportunities Project provides a unique academic experience for undergraduate students to successfully propose, design, fabricate, fly and evaluate a reduced-gravity experiment. The overall experience includes scientific research, hands-on experimental design, test operations, and educational and public outreach activities. The reduced-gravity aircraft generally flies 30 parabolic maneuvers over the Gulf of Mexico. This parabolic pattern provides about 30 seconds of hypergravity (about 1.8-g's to 2-g's) as the plane climbs to the top of the parabola. Once the plane starts to "nose over" the top of the parabola to descend toward Earth, the plane experiences about 25 seconds of microgravity. Interested students should submit a letter of intent by **Sept. 19, 2007**. The letter of intent is optional, but serves as an introductory notice that a team plans to submit a proposal for the upcoming competition. Final proposals are due **Oct. 31, 2007**. For more information, visit: <http://microgravityuniversity.jsc.nasa.gov/>



From a teacher on the NSTA list-serv- Here are some great environmental resources (see the resources for teachers and students at the foot of the page.) I especially like <http://www.soil-net.com/> It has some great activities that work well with many of our lessons---soils, biomes, stream tables, etc.

For short videos available online there is of course the WGBH Evolution website. You will get a list of about 50 video clips edited out of the Evolution mini-series. Another nice source for molecular genetics videos is "Secret of the Sequence" series at <http://www.pbs.org/wgbh/evolution/library/> or [http://www.pubinfo.vcu.edu/secretsofthesequence/playlist\\_frame.asp](http://www.pubinfo.vcu.edu/secretsofthesequence/playlist_frame.asp). There are 50 titles available here as well.

You'll find some neat and useful ideas at <http://www.indiana.edu/~ensiweb/lessons/unt.n.s.html>. Scroll down to The First Days, and don't forget to check out the other ideas for introducing your kids to the real Nature of Science, on that page, and back on the Teaching Units page (link at top of the page).



4 videocasts on evolution..free CDs upon request. Go to: [HTTP://WWW.HHMI.ORG/BIOINTERACTIVE/EVOLUTION/](http://www.hhmi.org/biointeractive/evolution/)

**Get some great teaching ideas and have some fun, too, watching the Exploratorium's broadcast of "The Iron Science Teacher"!** [http://www.exploratorium.edu/iron\\_science](http://www.exploratorium.edu/iron_science)

**From Liz Buttner at the State Department of Education:**

**DISTRIBUTION LIST UPDATE:** If I don't already have the contact info for a science leader in each of your district's schools, you may want to send me names and e-mail addresses for principals, assistant principals or other designated science contacts in your district who might benefit from being on my distribution list.

### **ESPECIALLY OF INTEREST TO K-8 TEACHERS!**



**FROM BIOED ONLINE: FOR GRADES 4 AND 6, 4.3 AND 6.4:** Create a Lasting Water Cycle: Just posted to BioEd Online, an engaging activity to help your students begin to understand the importance of the water cycle in their daily lives.

**FOR K-5** BioEd Online for K - 5 (<http://www.bioedonline.org/k%2D5/>) features resources that may be especially useful to elementary teachers. Secondary teachers also may find strategies that can be adapted to meet the needs of learners with varied abilities in their classrooms.

**FRAMEWORKS!! GRADE 9:** Materials World Modules Program presents interdisciplinary modules on topics in materials science -- composites, ceramics, concrete, biosensors, biodegradable materials, smart sensors,

polymers, food packaging, and sports materials. Modules are inquiry based and hands-on. They incorporate concepts from chemistry, biology, physics, and mathematics. (Northwestern University, National Science Foundation) [http://www.materialsworldmodules.org/modules/Teacher\\_Sampler.pdf](http://www.materialsworldmodules.org/modules/Teacher_Sampler.pdf)

**AN IMPORTANT DOCUMENT: [www.cssaonline.net/GLE.doc](http://www.cssaonline.net/GLE.doc) introduces the Grade Learning Expectations for the Frameworks**

This site has released test items in math and science from TIMMS. A great resource:  
<http://nces.ed.gov/timss/educators.asp>

PUMAS (**po**' • mas) -- is a collection of one-page examples of how math and science topics taught in K-12 classes can be used in interesting settings, including everyday life: <http://pumas.jpl.nasa.gov:80/>

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**IF YOU CHANGE SCHOOLS OR YOUR EMAIL ADDRESS, PLEASE SEND AN EMAIL TO [CHARTSHORN@CTACAD.ORG](mailto:CHARTSHORN@CTACAD.ORG) LISTING YOUR NEW EMAIL AND/OR SCHOOL NAME AND IT WILL BE UPDATED ON THE DATABASE.**

***We are presently funded by Bristol-Myers Squibb***  
***<http://www.bms.com/landing/data/index.html> MANY THANKS TO OUR SPONSOR***