The Science Explorer

Suffolk Section: Science Teachers Association of New York State Newsletter

Volume 39 **Number 2** **Winter 2011**

The Chairperson's Corner
Happy New 2011 – Get Involved

James Ripka, Ph.D

What's new in 2011? *The International Year for Chemistry* for one thing. To participate in events go to Chemistry2011.org to get involved. Suffolk STANYS will have its Annual Meeting at Stony Brook on April 2. Get ready for exciting workshops, seminars and a large share-a-thon area. We also look forward to at least one or two field programs as the weather improves. Seal walks, fossil expeditions, wetlands exploration and more are among our areas of interest. If you have an interesting idea, please let us know.

Science education in New York State faces many challenging issues in 2011. Our current science curricula will continue with minor changes provided the New York State Education Department receives increased funding. The NYSED budget for assessment was about $14 million for many years. This budget was adequate for all Elementary, Middle and High School statewide assessments, which include Regents Exams. Has the recession caused the rumors, ruckus and hullabaloo about canceling Regents Exams? No, it was No

(Continued on page 3)

Atlantis Marine World Aquarium Trip

Glen Cochrane , Vice President-Programs

On Saturday November 13, about 35 teachers and families enjoyed a beautiful fall day at Atlantis Marine World in Riverhead. Chris Brady and Educational Department did a fantastic job showing us what is available at this world class facility. We started with a Behind the Scenes Tours where we learned about feeding the sea lions, saw baby penguins, and heard fascinating details about the exhibits. Chris shared with the teachers lots of information about the animals and ecosystems as we looked at their diversity of tanks. The children in our group were particularly thrilled to touch whelks, horseshoe crabs, and sea ray in specially designed touch exhibits. The tour continued to outside exhibits of penguins, otters, snow monkeys, and a sea lion show in the theater. Several teachers ended the day with a tour of the Riverhead Foundation for Marine Research and Preservation facility.

Atlantis Marine World is extremely accommodating for school groups. The admissions fees are very reasonable and the programs are a bargain. The offerings of the Education Department span all ages and interests. I have been to several aquariums and I can say this is one of the best. I highly recommend a visit to this Long Island gem with your classes and families. ■

Special points of interest:

- Eastern LI "C" Division Science Olympiad: February 12, 2011
- Eastern LI "B" Division Science Olympiad: March 5, 2011
- High School Physics Day March 30, 2011
- Suffolk STANYS Annual Conference: April 2, 2011
- Long Island Science Congress: April 6-7, 2011

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Website & Facebook

Melissa Montauk

Suffok STANYS has an updated website at:

www.SuffolkSTANYS.org

The site is there as a tool for everyone to use. It will be continuously updated so please come back to the site frequently to see what our new poll is, find out about upcoming events, print forms, see photo's of past trips, and find great websites to use in the classroom.

Science Teachers Association of New York State (STANYS) has made a page on Facebook, so all you facebookers come and join our over 160 fans. This is a great way to talk about possible trip ideas, talk with teachers around the state, find out about great video's, articles, and websites.

http://www.stanys.org/

WHO'S WHO IN STANYS SUFFOLK SECTION LEADERSHIP

The following people can provide information on membership, teacher workshops and other activities. The Subject Area Representatives (SARs) can provide current information on NY State Education Department Core Curricula and testing programs.

♦*Indicates individuals who serve in more than one capacity and for whom contact information is listed only once.*

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Chairperson's Corner (*continued from page 1)*

Child Left Behind (NCLB) legislation. No Child Left Behind mandated massive testing in elementary and middle school. After NCLB testing started, the assessment costs ballooned to $40 million plus. However, "promised" government funding to cover these costs was never realized.

NYSED was forced into a corner. Federal law requires NCLB testing. Regents Exams are not required by Federal law; hence, if NYSED has to cut, they have to cut non-mandated programs, such as Regents Exams first. It probably seems ridiculous to you that required NCLB Grade 3 - 8 testing can destroy our High School Level Regents Exams. But this could be the case. NYSED has three basic options. 1: increased funding to cover the increased costs; 2: Cut Regents Exams costs, Regents Exams, or August and/or January Exams from the schedule; 3: charge districts the costs for Regents Exams.

NYSED has already enacted several cost saving measures, such as eliminating the grade 8 assessments in Social Studies and Global Languages. They no longer will print and distribute hard copies of answer keys, and they have significantly reduced the number of translations of exams.

It is my opinion that we must keep our Regents Exams. Our Regents Level Science courses are considered among the best Commencement Level Science education in our entire country. Without the Regents Exams, we would be in danger of changing to an integrated Science approach as seen in other states. In addition, without mandated regents exams, there is the risk that we could switch to a single period Science instruction. Students may no longer have a mandated laboratory instruction period resulting in more limited hands-on exploration of Science. This is the situation in most other states.

In fact, the proposed National Standards suggests using "mental models" of education as opposed to laboratory models, so no lab period is required. Administrators may see this as a golden opportunity to save money. Fewer science classes need fewer teachers. They will let go teachers and say they are just following the National Standards. If labs are cancelled, there will be a large surplus of science teachers in New York.

"It is my opinion that we must keep our Regents Exams. Our Regents Level Science courses are considered among the best Commencement Level Science education in our entire country."

Get involved in 2011. Advocate for inquiry based science instruction and keep our Science programs strong. ■

Save the Date! April 2, 2011

SCSTA Spring Conference

Glen Cochrane

The Suffolk County Science Teachers (SCSTA) Spring Conference will be held on Saturday, April 2, 2011 at the Wang Center, Stony Brook University. Dr. Stephen Dewey will be our keynote speaker who will present *"The Effects of Drugs of Abuse on the Human Brain.*" The program will include a Share-A-thon and two sessions of a wide variety of workshops. Registration will be online. Look for upcoming details on the SCSTA website and on the online teacher discussion groups.

Registration will be done online at ***http://scsta2011.eventbrite.com/***

If you would like to offer a workshop, share at our morning Share-A-Thon, or have suggestions for a workshop, contact me at ***gblink735@gmail.com***

Teachers Invitational Whalewatching Trip

Cape Cod & Boston
June 28-30, 2011

Only $99 per person
(double occupancy; spouses welcome)

Open to active full-time teachers of grades 5 through 12, and one guest/roommate
Experience the trip that put CTA on the educational travel map.

Includes all this:
- 3 ½ hour whalewatch cruise from Provincetown, MA
- Boston Museum of Science
- Naturalist-led salt marsh walk
- Floating Classroom oceanography activity
- New England Aquarium
- Two breakfasts
- Two dinners
- Two nights lodging in a top quality hotel
- CTA Trip Director throughout
- Charter motorcoach transportation departs from:
  - Allentown, PA
  - Bridgewater, NJ
  - Bridgeport, CT

Why so inexpensive? Simple. After you take this trip, you'll want to bring your students here with CTA. We designed the first student whalewatching trip in 1982 and have more experience than anyone in creating a fantastic whalewatching field trip experience for you and your students.

Register today at ***www.CTAfieldtrips.com*** using Trip Code: whale2011(case sensitive).
Space is limited!
Professionally Designed Educational Tours
800-541-6606 Email: ***request@CTAfieldtrips.com***

MATEX a Huge Success!

By Melissa Montauk

MATEX, the annual Materials and Textbook Exhibit sponsored by the Suffolk Section of STANYS, was held on October 21, 2010. A total of 33 vendors set up 44 tables of materials and resources. The event was again held at the Islandia Marriott, which was very accommodating and a convenient location for most Suffolk teachers.

There were many new vendors as well as some tried and true vendors. Tom the fossil guy was there with many more tables this year of amazing fossils to buy. Educational Innovations came with many cool demo's to use in our classrooms. EduWare showed off their new technologies such as the new web based version of their EduGAME and test generating software to use with your classes. One of the tables that had a lot of buzz was CTA or Curriculum Travel of America. They are offering a Whale watching trip to Boston for $99! The trip includes hotel, food, museum tickets, as well as the whale watching itself. This is a great deal. The full list of the 2010 exhibitors and their links can be found on our website (***www.suffolkstanys.org***). Please check it out, the vendors were amazing and they would love to help you with anything you may need.

The vendors I spoke with were very pleased with the turnout and facility. Participants left with bags of freebies provided by all our vendors. Once again the vendors were more than generous in their giveaways as well as their door-prize donations. Hopefully, next year will be even better! I would like to take this opportunity to thank all the vendors and participants. The STANYS Suffolk Section, an organization for teachers, truly appreciates your support.

We hope to see you there next year! Don't miss this opportunity to see what's new in science education! ■

Outstanding Students and Teachers to be Recognized at the 36th Annual Awards Dinner in May

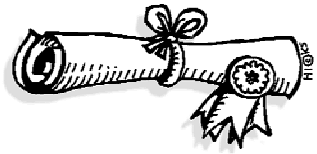
Brian Vorwald

Each year the STANYS Suffolk Section presents an Awards Dinner at which outstanding science students and science educators are honored. The dinner this year will be held on May 24, 2011 at the Islandia Marriott Long Island Hotel. Each high school science department from districts who are patrons of our ***District Membership Services Program*** nominate an outstanding graduating senior who is recognized at the Awards Dinner. Letters will be sent to all Suffolk County High Schools requesting nominations for the outstanding senior science student. Please see if your district is a patron of the ***District Membership Services Program*** and is eligible to submit a student nomination. If not please consider supporting the program for next year.

Also at the Annual Awards Dinner, three teachers (elementary, middle level, and high school) will receive our *Science Teacher Recognition Awards* for meritorious service as science educators. A letter will be sent in the third week of January to all building principals inviting them to nominate a member of their faculty for recognitions as a ***Science Teacher of the Year***. We invite you to assist us with our *Science Teacher Recognition Awards Program* by submitting a nomination form for an outstanding science educator. You may nominate a colleague or yourself to be a candidate for recognition as a Science Teacher of the Year - 2011. A nomination form is provided on page 8 of this issue.

The award recipient may be either a teacher of science or a science specialist who has made extraordinary contributions to the science teaching profession. Examples of such contributions include but are not limited to:
(1) An outstanding teacher- One who helps students and other teachers both inside and outside the classroom with the delivery of science programs, organizes special student programs and has achieved success with special groups. (2) An innovative teacher - One who successfully introduces new programs, develops or revises curricula, teaching methods or materials. (3) A teacher serving other teachers - One who works through professional organizations such as STANYS, SCSTA, NSTA, BOCES, intra-school or inter-school programs, to provide ongoing help for student teachers, new teachers and veteran teachers.

To nominate a teacher for an award use the form printed on page 8 and feel free to duplicate it as necessary. Once we have received this form, a nomination packet will be sent to the candidate. It will be the candidate's responsibility to complete all forms and obtain all required documentation. The scoring rubric that will be used to rate nominated candidates who submit documents for consideration can be found on pages 6-7 of this issue. We look forward to receiving your nominations! ■



New Framework for Science Education Being Developed

A consortium of partners, let by the National Research Council Framework Committee, is in the process of developing a national "Framework for Science Education." New York State is a partner in this endeavor and will participate in the development of "Next Generation Science Standards" which will be released in 2012.

For updates and more information, visit the following websites:

Science Curriculum and Assessment Update:
http://eservices.nysed.gov/vls/newsDetail.do?contentID=25612

Conceptual Framework for New Science Education Standards
http://www7.nationalacademies.org/bose/Standards_Framework_Homepage.html

Suffolk STANYS Outstanding Teacher Award Scoring Rubric

Nominee _____

Award: ❒ Elementary Level (K - 4) ❒ Middle Level (5 - 8) ❒ High School (9 - 12)

Criteria	0 No evidence	1 Limited Evidence (Poor)	2 Limited Evidence (Fair)	3 Clear Evidence (Good)	4 Clear Evidence (Very Good)	5 Clear, Consistent, & Convincing Evidence (Excellent)	Weight	Score
Outstanding classroom teacher as verified by submitted documents	No letters submitted	1 letter with limited evidence	2 letters with some evidence	2 letters with evidence of effective classroom practices	2 or more letters with clear evidence effective classroom practices	2 or more letters with clear evidence of varied and effective classroom practices.	**X 4**	
Leader of Science Students. Examples include but are not limited to Science Club advisor, Science Olympiad coach, Science Fair sponsor, other:	No evidence	Less than 2 years; assisted in activities only	Less than 2 years in an activity	2-5 years as the leader in an activity; can include assisting in more than one activity for 2-5 years.	More than 5 years as a leader of a science activity and/or leadership in more than one activity	More than 5 years as a leader of more than one activity	**X 4**	
Professional Development Activities	No evidence	Occasional participation in district PD only	Occasional participation in workshops and conferences	Evidence of on-going participation in PD	Specific detailed evidence of PD including attendance at conferences	Specific, detailed evidence of extensive, ongoing participation in PD including conferences.	**X 2**	
Participation as teacher-leader and/or trainer	No evidence	Has assisted in the delivery of a course or workshop and/or has assisted/mentored teachers in his/her school	Has been the primary presenter of a workshop or course and/or has trained and mentored teachers in his/her district	Has been a presenter/ trainer of least two workshops, or conference presentations; can include extensive mentoring in district	Specific and detailed evidence of significant participation in programs (courses, conference workshops, prof. develop	Specific and detailed evidence of extensive participation in programs (courses, conference workshops, prof. development)	**X 3**	
Professional association memberships and participation	No evidence	Past membership in a prof. association; Not currently a member.	Current membership in a prof assoc., No evidence of continual membership	Current and continual membership in at least one professional association	Specific, detailed evidence of active involvement in one prof. assoc.	Detailed evidence of involvement in multiple prof. groups and active involvement in at least one.	**X 2**	

Criteria	0 No evidence	1 Limited Evidence	2 Clear Evidence	3 Clear , Consistent, and Convincing evidence	Weight	Score
Noteworthy scholarly contributions to science education (examples include but are not limited to published articles in newsletters or journals, publications, curriculum development)	No evidence	One contribution	Several Contributions	Multiple and continuing contributions	**X 2**	
Received Awards and/or recognition (examples include but are not limited to school district award, PTA award, STANYS recognition, etc.)	No evidence	Evidence of one award	Evidence of two awards	Evidence of more than two awards	**X 2**	
Experiences in scientific work, advanced education or research. Examples include but are not limited to summer institutes, work in research labs, advanced education beyond the Master's level (i.e., PhD, EdD, SDA, additional certification)	No evidence	Some evidence of scientific work, advanced education (course work not culminating in a degree or certification)	Clear evidence of scientific work, advanced education (course work not culminating in a degree or certification)	Clear, consistent and convincing evidence of sustained scientific work , advanced education (culminating in a certificate or degree)	**X 1**	

Total Score:

Comments: _____

_____

_____

_____

Rated by: _____ Date _____

Science Teacher Recognition Award
2011 Nomination Form

Science Teachers Association of New York State
Suffolk Section

Please use this form to submit a nominee for consideration for the *Science Teacher Recognition Award* and also feel free to duplicate as necessary.

PLEASE PRINT OR TYPE ALL INFORMATION

Nominee		**Mr., Mrs., Ms, Dr.**	**First**	**Last**
	School District			
	School Name			
	School Address	**Street**		
		Town/Zip		
	School Phone			
	Email			
Person Submitting Nomination		**Mr., Mrs., Ms, Dr.**	**First**	**Last**
	Position			
	School Phone			
	Email			

Please mail the completed nomination form to:

Brian Vorwald
10 Media Lane
Stony Brook, NY 11790

A Tale of Two Cities (plus 1): Visiting Science Museums

Ed McDaniels

When I took my children on summer vacations, any science museum within a 60 mile radius of our campgrounds was always a prime target. Often I wouldn't tell my kids where we were going until we pulled into the museum's parking lot. Their inevitable chorus was, "Another museum?" But since I had not unlocked their doors yet, they had already been trapped by my, oh so clever, ruse. Dad wins again! More often than not, by the end of the day, they grudgingly agreed they had a good time. Then I would bribe them with ice cream to insure their future compliance.

Now that I am retired, I don't have to drag my kids with me and I can visit science museums anywhere I happen to go. Recently I had the opportunity to visit three science museums in different parts of the country (Cleveland, OH; Detroit, MI; Hartford, CT) and I thought I'd share some thoughts about them. First, museums of today are a lot better than the museums of my children's era, 25 years ago. For a start, they all call themselves science centers instead of museums. I guess, museums have a PR stigma of being static and old fashioned. Maybe brussel sprouts would taste better with a yummier sounding name. Anyway, today, hands on, minds on exhibits are the norm and almost every exhibit has an interactive and/or multimedia component to it. Well choreographed shows run throughout the day that thrill and challenge kids with the express purpose of making science fun and interesting. Each of the science centers were being used by their local schools and kids were running around and playing with all the exhibits. I found that if you waited until the afternoon, you had a much better chance of interacting with the exhibits undisturbed by school groups.

At the **Detroit Science Center** they had a show about electricity that any physics teacher has probably duplicated in their classroom but tremendously scaled up. My classroom Van deGraaff had a dome a little more than a foot across and I did some great and memorable demos with it. Their three foot dome put mine to shame. Their eight ft tall Tesla coil also bumped up the scale of the demo to one that your typical teacher could only envy. I have to admit that I probably did more explanation of the science and the working of the mechanisms than the museum staff, (sorry, science center staff), but the room full of 5th and 6th graders didn't seem to mind. The demonstrator ended his half-hour show by putting a piece of iron wire across the terminals of a capacitor about the size of a foot stool. When the switch was thrown and all that energy instantaneously dumped across the wire's ends, **BANG!** The wire vaporized with a shock wave creating an incredibly loud, ear-ringing boom. Those kids will never forget that demo. I did ask the presenter after the show how much was the capacitance they used and I got this very blank stare. Okay, so I'm not their targeted audience and it didn't dampen my enthusiasm one bit. Since industry was the cornerstone upon which Detroit was built, the museum there has many wonderful exhibits that were created by the various industries that contributed to its growth and vitality; the steel industry, chemical industry, and Toshiba has a 4-D theatre that encompasses sights, sounds, motions of your chair and water in your face to show students why they might want to be engineers. The Detroit Science Museum has three floors with all the sciences and math areas well represented. They have exhibits crammed into every little nook and cranny of the huge floor space they have. You can easily spend three or four hours there and still feel you haven't seen everything.

"Each of the science centers visited was a good experience, with or without kids for anyone who just enjoys learning. Could that be you?"

In Cleveland Ohio, the **Great Lakes Science Center** sits on the shore of, well the Great Lakes; Lake Erie to be specific. It has a big (150 ft) wind turbine in the front of the science center as well as 300 feet of photovoltaic panels, both patched into the science center with meters and gauges that show current as well as historic data of their outputs. The center's exhibits are almost all hands-on organized by topics with nice explanations at the stations. The layout is very open so a teacher could watch their class as they used the various exhibits on each floor. There were more exhibits on the lower floors but they required separate admissions, so this was not as dollar friendly as the Detroit center.

The **Connecticut Science Center,** in nearby Hartford Connecticut, is only about a two hour drive from Long Island. This building has four floors of exhibits, again, spanning the full range of the sciences. In my recent visit, two other retirees and myself scouted out the science center as a possible trip for our science organization. On the first floor, they have a large area called the Children's Gallery that was filled with interactive water exhibits geared for ages 3-7. It was great. After pushing the kids aside

(continued on page 19)

High School Physics Teachers' Day

Wednesday, March 30, 2011

Marriott Marquis Hotel at Times Square, New York City

Free to first 50 teachers!

The Division of Physics of Beams (DPB) of the American Physical Society invites you to attend a High School Physics Teachers' Day on Wednesday, March 30, 2011 in New York City. This Teachers' Day, which will be free, will provide a full day of professional development geared to physics teachers.

This workshop is part of PAC'11Conference, the latest in the highly successful series of Particle Accelerator Conferences and also the first regional North American PAC organized to attract accelerator scientists, engineers, students and industrial exhibitors interested in every aspect of the science and technology of particle accelerators. PAC'11 is hosted by Brookhaven National Laboratory, and jointly sponsored by the IEEE Nuclear & Plasma Sciences Society and the APS Division of Physics of Beams. The Scientific Program Committee is developing a dynamic and stimulating program covering all topics relevant to our community.

Highlights of High School Physics Teacher's Day include:

- Hands-on workshops presenting innovative, classroom-ready activities for physics students
- Research talks on cutting-edge physics
- A welcoming breakfast, where you can network with fellow teachers
- A luncheon, where you can network with each other and conference participants

Since the number of places is limited, please register early and before **February 16th, 2011**.

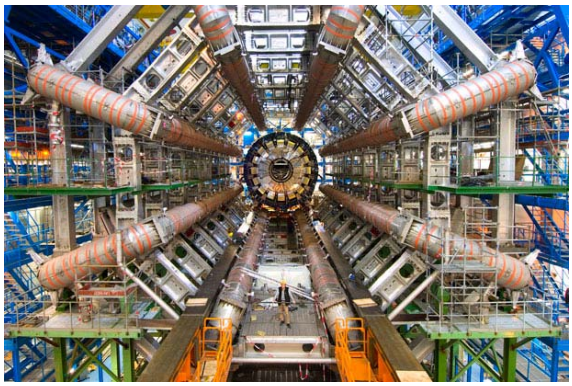
Registration information is available at:

http://www.c-ad.bnl.gov/pac2011/teachers/teacherFlyer.htm

For more information contact:

Scott Bronson, Office of Educational Programs at BNL: sbronson@bnl.gov

Should you encounter difficulty with registration, please contact Anna Petway at: ***petway@bnl.gov***



The Large Hadron Collider a particle accelerator at CERN, Switzerland

Subject Area Representative (SAR) Reports

Biology (Living Environment)

Glen Cochrane, Biology SAR

Every year I see discussion group comments and listen to remarks made by members of my department about the Living Environment Regents. I'm sure you've heard them and maybe made a few yourself: the reading is too hard, too much reading, non-science vocabulary is beyond my students, I didn't like that question, what happened to the "old Biology," that question is too complex for the concept, etc. Why do we need these regents exams; other states don't have them?

New York has been a leader in standardized science education and test development for over a century. Our courses and regents exams have been standardized so students throughout the NY are taught similar material and could be compared (like the SAT). These exams, syllabi, and now Cores have guided the design of our courses and what is taught in NY schools. Our standards are high with four science regents exams. This insures students have the opportunity to experience four years of standardized science courses. The core curricula set not only the minimum standards of what you teach but what most districts offer. Without the four standard science courses, districts could reduce time for lab experiences, combine courses into one, and curricula would change to local standards. This certainly doesn't fit in with the current tend toward national standards.

Where do "they" get the Regents Exams? How are the Regents Exams made? Who makes them? The exams are made by us; teachers of the courses from all corners of the state. The LE exam (and I assume the others) are developed with specific guidelines by teachers. All LE exams are designed to have the same level of difficulty based on several factors including the field test results. The grades (conversion scales) are set based on a standard level. A blueprint specifies the number of credits from each Key Idea and the style of question for each part of the exam. Item writers are teachers trained to write questions using specific guidelines. Writers are given assignments to complete by spring of year one. Questions must align with the LE Core, be referenced, and formatted. Those questions are reviewed by teachers in the summer and may be pre-tested on field tests the spring of year two. Results of the field tests are reviewed and those questions may be placed in the bank of exams questions. Questions are pulled from the bank and put on the next field test (a rough version of a future exam) which is created according to the blueprint. Two committees of teachers review those tests for language, double jeopardy, only one correct answer, being scientifically correct, no repeat questions, clarity of diagrams, etc. Efforts are made to make sure the questions are clear and the scoring guide is accurate. Questions are checked by teachers to verify they align with the core and that the vocabulary is grade appropriate. Those questions are again field tested in the spring of year three, results analyzed, and the final selection of questions are made and level of difficulty checked before the exam is designated as operational for year four. "Final eyes" is the last teacher committee to review the exam a few months before the exam is administered.

"New York has been a leader in standardized science education and test development for over a century."

Is New York the only state with

(Continued on page 12)

Center for Science and Math Education Summer Teacher Workshop

June 27—July 1, 2011

CESAME will offer a laboratory-based workshop for biology and earth science teachers from June 27 – July 1, 2011. The workshop will provide teachers with professional development in cutting edge applications of science concepts. Details and program application will be posted on the CESAME website by mid-January: ***www.stonybrook.edu/cesame***

"NCLB supports standards-based education which defines what students should know and be able to do and it calls for clear, measurable standards for all students."

(Continued from page 11) Biology SAR Report

Regents Exams? Most states now have "exit exams" of some sort. The *No Child Left Behind Act, 2001* requires states to develop assessments in basic skills to be given to all students in certain grades, if those states are to receive federal funding for schools. NCLB supports standards-based education which defines what students should know and be able to do and it calls for clear, measurable standards for all school students. Standard reform is based on the belief that setting high standards and establishing measurable goals can improve individual outcomes in education. NCLB does not assert a national achievement standard so the standards are set by each individual state. Regardless of opinion, NCLB's has had the effect of increased testing, especially at the elementary levels. NY high school science education has been way "ahead of the curve" on this. The other states are now administering exit exams but usually not in four different sciences.

The LE Regents Exam is developed by NY teachers and field tested on NY students. Potential questions are reviewed by many teachers and the content is aligned with the LE Core. I am amazed that there is actually such a diversity of new and creative questions each year. Students are expected to recall, apply, interpret, analyze, evaluate and think when they take the exam. Isn't this a goal of high school education? I am proud of the NY Regents Exam system and the quality of the exams we produce. Realize that almost all the students in New York now take the LE exam and a great majority are successful. This gives our students the opportunity to obtain a necessary requirement to graduate with a regents diploma. ■

"The LE Regents Exam is developed by NY teachers and field tested on NY students. Students are expected to recall, apply, interpret, analyze, evaluate and think when they take the exam. Isn't this a goal of high school education? I am proud of the NY Regents Exam system and the quality of the exams we produce. "

News from College SAR

Linda Padwa, College SAR

There are several interesting opportunities available for candidates in science teacher preparation programs.

- Free membership in STANYS – see enrollment form elsewhere in this publication and submit it with a letter from your faculty advisor.
- Apply for a reduced rate membership in the National Science Teachers Association (NSTA). The membership rate for teacher candidates is only $34/year. Application information can be found on the NSTA web site (***www.nsta.org***). Along with your application for student rates you will need to submit a letter from your faculty advisor.
- Reduced rate for students to attend the Suffolk STANYS Conference in April, 2011 (see conference registration material for details).

Another option that is made available through NSTA is the formation of a student chapter of NSTA on your campus. More details can be found at: ***http://www.nsta.org/about/collaboration/chapters/student.aspx***

Stony Brook University's NSTA student chapter has sponsored several programs this year and would welcome the opportunity to interact with students from other science education programs in the area. For information about programs and starting your own student chapter of NSTA, contact the faculty advisor, Linda Padwa (***Linda.Padwa@stonybrook.edu***). *(continued on page 15)*

2011 Is The International Year Of Chemistry

James Ripka, PhD., Chemistry SAR

The year 2011 has been designated as the International Year of Chemistry (IYC). The IYC is an official United Nations International Year, proclaimed at the UN as a result of the initiative of IUPAC and UNESCO. Under the theme "Chemistry -- Our Life, Our Future," IYC will consist of a year-long series of events, educational lectures, exhibits, and experiments around the globe designed to focus the world's attention on the importance of chemistry in supporting basic human and economic needs. IYC also coincides with the 100th anniversary of the Nobel Prize award to Madame Marie Curie. Programming will highlight women in chemistry and international partnerships, with the aim of increasing public appreciation of chemistry, encouraging interest in chemistry among young people and generating enthusiasm for the creative future of this science. For the first time in history, **a change will be made to the atomic weights of some elements listed on the Periodic table of the chemical elements posted on walls of chemistry classrooms and on the inside covers of chemistry textbooks worldwide.** The new table will express atomic weights of 10 elements -- hydrogen, lithium, boron, carbon, nitrogen, oxygen, silicon, sulfur, chlorine, and thallium -- as intervals, having upper and lower bounds, to more accurately reflect how these elements are found in nature and convey variation in atomic weight. For example, sulfur is commonly known to have a standard atomic weight of 32.065. However, its actual atomic weight can be anywhere between 32.059 and 32.076, depending on where the element is found. More details about IYC can be found at:

www.chemistry2011.org ■

Developing Science Stories of 2011

Some of the major stories to be watched in 2011, according to *Science* magazine are:

1. **Large Hadron Collider**: A smaller detector at the Large Hadron Collider called LHCb, will study particles called B mesons in great detail. The particle accelerator aims to make several measurements on physics phenomena involving B mesons as an early priority to study the asymmetry between matter and antimatter. Maybe we will be able to finally answer the question of why the universe is composed of matter?

2. Adaptation genes: New techniques such as Restriction-site Associated DNA (RAD) tag sequencing should lead to the discovery of more genes, helping scientists learn which genes help a wide variety of organisms thrive in the natural world.

3. Laser fusion: The National Ignition Facility will attempt a long-sought goal of energy research: an ignited fusion burn. The facility's 192 laser beams will pump energy into a peppercorn-sized target containing deuterium and tritium. The ensuing implosion compresses and heats the nuclei until they begin to fuse, releasing energy. If that self-heating causes a sustained fusion burn with energy gain, NIF will have finally shown that generating power from fusion is at least possible. We will have created a miniature sun on our own planet.

4. Hammering viruses: Broadly neutralizing antibodies, or bNAbs, are capable of disabling a wide range of viral variants. Researchers hope to come up with the viral pieces that trigger the immune system to make bNAbs, thus creating broader immunity in antiviral drugs.

5. Electric cars: The first plug-in electric vehicles - including Nissan's Leaf, Chevy's Volt and Toyota's Prius - whose batteries are charged from a wall socket go on the market. These cars make a marked shift in the demands put on battery technology to take consumers where they want to go. Will consumers be willing to pay for this?

6. Malaria shots: Results from a late-stage trial of a malaria vaccine in Africa will be announced late in 2011. The vaccine, called RTS, offered roughly 50 percent protection in mid-stage studies.

Present any of these topics in your classroom and follow the stories as they emerge over the coming year. ■

Linking Science, Math, & Literacy with a Science Center

Sheilah Schumann, Elementary Science SAR

For those elementary teachers who would like more time to focus on science in the classroom, consider engaging your students in "fun" learning by way of a science center. A well planned science learning center helps math, reading, and writing literally come alive in your classroom! With a science center, students can play, learn, and interact while they observe and explore motivating objects and phenomena, research relevant information in books and magazines, perform rudimentary experiments, communicate results in logs and charts, and replicate and/or creatively rework whole group activities. By taking advantage of the multifarious prospects inherent in science, you can painlessly provide your students with real-world applications in both math and ELA!

"A well planned science learning center helps math, reading, and writing literally come alive in your classroom!"

In setting up your classroom science center, use a filing cabinet or plastic storage trays to organize materials. Trays and plastic tubs can also be used to store reading material and student writing books. Organize drawers with the equipment needed for different conceptual areas or topics. One drawer might have tools and equipment related to force and motion, or magnets. Another might be related to life sciences, plants and insects, or geology. However the drawers are organized, all bins should be carefully labeled.

Math-related equipment that may be used for investigations include graph paper, activity sheets, and a full stock of measuring tools (such as a double pan balance, hexagram masses, a thermometer, rulers -- with centimeters and inches!, a graduated cylinder, measuring cups and measuring tape). In devising math-related activities, remember that students need to learn to select the correct tool for a given task. They also need to realize the importance of including units in their answers!

Literacy-related materials applicable to a science center include: science magazines (or newspaper and magazine clippings), science-related picture books, poetry and resource material, posters and wall charts, colored markers and pencils, audiovisual materials, graphs, scrapbooks, writing journals and/or lab notebooks. You may choose to rotate students though the science center during scheduled literacy time (where they can be engaged in various science-related reading/writing activities) or you can allow individuals or pairs of students to use the science center during free choice time.

Making good observations is crucial to the scientific process and the writing process as well! Students need to know how to communicate and defend their observations using specific language so that others can understand them. One of the easiest ways to foster these skills is to set up objects for students to informally observe, discuss and question during the school day. Observations can be made on live animals, specimens to be examined (such as leaves, seeds or rocks and minerals), or any other materials relevant to a specific unit. Methods for inspiring and recording observations include: setting up a bulletin board on which students can relate observations or questions for whole class discussions, using journal time to document and record observations, and/or assigning a science-related "do now" to cultivate observation skills. Activities such as these further serve your classroom by keeping students engaged in science learning throughout the week!

"Making good observations is crucial to the scientific process and the writing process as well! Students need to know how to communicate and defend their observations using specific language so that others can understand them."

Potential topics for unit studies include: Sink/Float, Magnets, Ramps, Light, Building, Measuring, Magnifying, Five Senses, Sound, and Rocks & Soil. Great examples of standards-based activities can always be found on the internet. One suggested primary classroom model can found at: *http://www.elementary-teacher-resources.com/science_centers.html*

Don't forget to support independent study by encouraging projects. Take-home science motivates students, fosters responsibility, and facilitates parental involvement as well! To integrate responsibility even further, involve students in setting up the classroom's science center. Ask them to also help create the rules for material use. Working collaboratively, using equipment safely, communicating results, storage of materials, etc. can all be topics for mini lessons.

Through the creation of a permanent place in your classroom where science supplies can be stored and where active science learning can take place, you will motivate student involvement, foster student creativity, promote independence and responsibility, and allow for initiative and discovery! Oh, and attend to mathematical and literacy skills as well! ■

Forensic Science — Computer Forensics

Jeannie Guglielmo, Suffolk Section Forensic Science SAR

An interesting and current topic to include in your forensic science curriculum is a unit on computer forensics. Several lessons can be presented that can serve three objectives.

The first objective can be to have students learn about the applications of computers in forensics. A project can be assigned that has students do independent research on a particular case that computers were involved, like an Internet scam. The teacher can have a group of potential cases that the students can choose from, some involving young students who were the victims. Students can present their cases and help build content knowledge as to the broad spectrum of cases that are encompassed in this area of forensics.

The second objective can be to address safety issues for younger students and young adults so that they can avoid becoming a victim of a computer crime. Helpful tips to protect children from Internet dangers are available from the online safety experts at ***BitDefender.com*** (BitDefender Offers Ten Online Safety Tips for Parents and Teachers During Child Abuse Prevention Month). A few helpful hints to teach include: 1) never make plans to meet online acquaintances in the real world without a parent/guardian present, 2) always end conversations you find uncomfortable, 3) should someone on the Web, even a friend, make you feel scared, confused, trapped, offended, or threatened, find an adult to talk to, and 4) identify e-mails that contain spam or obscene or aggressive messages. Also, students need to understand that content posted online can become a part of their "permanent digital record" and can hurt their future endeavors, such as getting into a college or getting a job.

The final objective can be to provide a message about the dangers of cyberbullying. Bullying is an epidemic in schools and this is an ever-present problem in a new venue. Suffolk County was the first county in the state to enact legislation this Spring specifically making cyberbullying a misdemeanor, and it is a problem that needs to be addressed. For this objective, you can present vignettes, written stories or show a video, that displays scenarios of possible cyberbullying. Ask students to describe what they would do if they found themselves in the various roles in the various scenarios. Using these suggestions as a guideline, you can effectively deliver forensic content in an interactive and engaging scenario that also passes on some very important safety messages. ■

"Suffolk County was the first county in the state to enact legislation … making cyberbullying a misdemeanor; it is a problem that needs to be addressed."

College SAR Report (*continued from page 12)*

Scholarship Opportunities for Science Teacher Preparation

There are several scholarship opportunities for those seeking initial certification as science teachers.

National Science Foundation Robert Noyce Scholarships – offered at Stony Brook University and Dowling College – for those interested in teaching science or mathematics in high-needs school districts ($10,000; two year teaching commitment)

Petrie Foundation Scholarship Loan Program – offered at Stony Brook University for those interested in teaching science, mathematics, or TESOL in New York City ($15,000; three year teaching commitment)

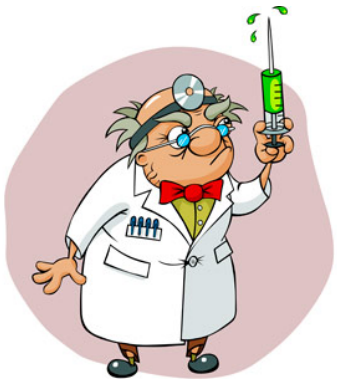
For more information about these opportunities visit the program web sites:

Stony Brook: ***http://www.stonybrook.edu/cesame/students/prospective-teachers.shtml***

Dowling: ***http://www.dowling.edu/noyce/***

Retiree Corner: Can You Trust Your Doctor?

Ed McDaniels, Retiree SAR



I had a recent interaction with my doctor that may be important to share with others. All the names in this tale have been ignored or changed to protect the guilty.

Over the summer my left upper, inner leg suddenly and quite painfully began to ache. It was keeping me up at night, making it painful to sit or drive. I didn't remember doing anything unusual that would have aggravated it other than my usual activities. Naturally I tried to ignore it, took some OTC medicines but after four weeks of sleep deprived nights, I decided to see my doctor.

I did my best to try to describe the onset, intensity and location of the pain. I related the activities that had preceded the sudden occurrence of the pain. I noted that in my dotage the frequency of minor aches and pains was neither uncommon nor infrequent but that the severity of this pain was out of the usual parameters of increasing old age. The doctor said, "Well, it's probably just arthritis." I asked if the pain of arthritis would occur suddenly and reach such severity without previous, milder symptoms first. "No, not usually. Let's get an x-ray and here is an anti-inflammatory medicine to take." I went and had my groin area thoroughly x-rayed from all different angles and had my leg pulled in just the right direction to produce excruciating pain. A couple of days later the radiologist sent the report to the doctor and indicated that it looked like the hip joint had a little bit of deterioration that might be indicative of arthritis. When I asked the doctor to show me the area on the x-ray that indicated this, she had a hard time finding the spot. Her next statement made sense, "Let's send you to a specialist, an orthopedist." When I made the appointment, I had two choices. I could see the head doctor in two months or I could see his partner that same week. The pain in my leg convinced me that sooner was better Both the radiologist and my doctor had said the specialist could view the digital x-ray from his office through the interconnected medical database. They were both wrong. The doctor took my leg and twisted it; imagine wrestling a drumstick from a chicken, my wincing and shuddering in pain convinced him that indeed I must have arthritis, even though he had not seen the x-ray. He prescribed a stronger anti-inflammatory medication and told me to see him again in two weeks. When I went back, I brought a copy of my x-ray and asked the doctor to show me the area causing all my pain. He hesitated over the film but eventually said, "Here is where that should be coming from." In asking him to assess the level of deterioration, he said it was very minor. I persisted, "By very minor, you mean typical of a patient in their sixties?" "Yes, it is what we would expect." I asked, "Is it unusual that this typical wear and tear should produce such a sudden and painful result?" "Yes, but it is still possible." He offered a couple of courses of treatment. One was to have a cortisone shot into the hip joint. For that I would have to go to the hospital and they would have to x-ray me while they placed the injection in just the right spot. That might relieve the pain but it had side effects and would have to be repeated in a few months. Boy, that didn't sound like a road I wanted to go down. I thanked him for his time and said I would come back if my leg continued to hurt. That was a lie. It was now,8 or nine weeks since my pain had started and 4 or 5 weeks of being on the anti-inflammatory drugs. I was feeling better and I just decided to go on with my life and forget the doctors.

In a recent visit to my usual doctor, I related this whole story. I asked if arthritis normally spontaneously goes into remission, especially since it is from an ever increasing deterioration of the joint. She admitted that, no, that would seem unusual. I said that since it seems obvious that we don't know what caused the original pain, arthritis being almost eliminated from the list, that she just should have said, "I don't know." By forcing an immediate diagnosis she sent me to a radiologist to look for arthritis and then to an orthopedist who immediately looked for joint problems. I asked if any of those people would have found a pulled muscle or torn ligament in the methods or tools they used to search. She said no. I said, "By sending down a particular path you closed off other options and people began to look to prove a diagnosis that was probably wrong." Frighteningly, they all did prove, what turned out to be the wrong conclusion. I said to her that as a teacher, there were times when a student asked me a question that I didn't have the answer to, it happens. She said that most patients are uncomfortable with their doctor not knowing. I told her, "I'm not most patients, I'm me." Both teachers and doctors can put students or patients in these neat little stereotypical boxes and forget that we are all individuals. The answer we give one of them may not be sufficient for another. As a closing thought, have you had a discussion with your doctor about the level of honesty and uncertainty that you are comfortable with in your relationship? Do you want honesty from your doctor or do you want comforting certainty? ■

CHILDREN'S BOOK SPOTLIGHTS TOP PLANET HUNTER

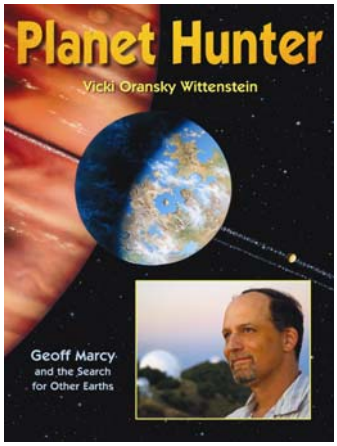
Author Vicki Wittenstein presented a workshop at the state conference.

A new book tells the inspiring true story of Geoff Marcy, the astronomer who has discovered more planets than anyone else . . . and keeps finding more. Marcy, a professor at the University of California at Berkeley, has found and helped to find nearly half of the 450-plus planets that lie outside our solar system. In clear, easy-to-understand language, Planet Hunter: Geoff Marcy and the Search for Other Earths by Vicki Oransky Wittenstein (Spring 2010, Boyds Mills Press) shares the techniques Marcy and other astronomers employ to discover strange new worlds outside our solar system that just might harbor life.

A former prosecutor and a writer for children and young adults, Vicki Wittenstein interviewed Marcy and several other planet hunters. To gain firsthand knowledge of how Marcy makes the fine measurements that reveal distant planets, she visited him at the W. M. Keck Observatory on Mauna Kea, a dormant volcano 14,000 feet above sea level on the Big Island of Hawaii.

Young readers will relate to the inspiring story of Marcy as a boy, gazing at the stars through a small telescope and wondering about life on other worlds. When he was young, his love of space helped him overcome struggles in school until finally he became an astronomer. Then, in order to conquer self-doubt and make major discoveries, he went back to the questions that thrilled him as a boy: Are we alone? Do Earth-like planets orbit the stars in the night sky? It wasn't easy to find a planet outside our solar system. But Marcy never gave up. Finally, in the mid-1990's Marcy and his partner Paul Butler discovered their first planets, which are now accepted as landmark findings.

The book is targeted for 10-14 year olds, but it can be used across grade levels to supplement the study of key scientific concepts, such as gravity, planetary systems, the Doppler effect, and properties of light. A free curriculum guide can be downloaded from Wittenstein's website at VickiWittenstein.com. ■



Suffolk Science Teachers at Atlantis Marine World

STANYS Annual Meeting Rochester 2010

By James Ripka, Section Chairperson

NYSED Science Associate Will Jaacks addresses the Board

The STANYS Annual Meeting in Rochester, 2010 has passed. Here's a short synopsis of what happened. There were over 300 workshops to choose from. On Saturday evening, participants enjoyed an exciting night at the Rochester Museum of Science. A special Crime Scene Investigator (CSI) exhibition allowed participants to take on the role of Forensic Scientists and solve a crime in the "lab". This exhibition has also been at the NY Hall of Science in Queens. Over two-thirds of attendees, our largest turnout in years for an invited speaker, attended the Fellows Presentation "The Living History of Marie Curie." The audience was enthralled by the presentation by of a Madame Curie actress who made you feel you were hearing from the amazing two time Nobel Prize winner herself. The difficult life story of Madame Curie gave us a new appreciation of the hurdles she jumped to succeed in her studies. Madame Curie was an inspiration for female scientists and science educators, who had to overcome obstacles to balance family with a career.

This year, the group dinners were buffet style and people loved it. Greater interaction among teachers was felt at this year's conference. The free raffle prizes were amazing, too. Several teachers had a "going out of business", namely, retirement, give away. Two large tables of box after box of their accumulated goodies were taken back across NY State.

Our NYSED Representative Will Jaacks was able to attend and gave an update at the Board of Directors meeting. The news was difficult to hear and dealt with cutbacks across NY State and possible significant changes to science curriculum due to budget shortfalls (see Chairperson Corner article). Our NYSED Science Associate is doing what can be done to preserve the high level of education, and we thanked him for his efforts.

Members of the Board of Directors addressed the very important issue considering the future of the STANYS Treasurer's position at their Saturday Board of Directors Meeting. At the time of the November meeting, STANYS Treasurer Harvey Weiner was in the middle of his second three-year term. Several months earlier, for a variety of reasons, he submitted a letter indicating that he would resign from his office as of June 30, 2011, a year early. Because the term was due to expire on June 30, 2012, the Executive Committee searched for individuals who would consider serving the last year of the current term and possibly agree to run for STANYS Treasurer in the Fall 2011 election. Because no candidates were found, STANYS was facing the potential of having no Association Treasurer after June 30th of this year.

A variety of suggestions were put forth to alter the duties and office of Treasurer in order to promote a healthy transition. One suggestion of an ad-hoc committee was to separate the position of Conference Treasurer and Association Treasurer. In fact, the Board did approve the committee's recommendation to establish a separate position of Conference Chairperson. This removed Conference related responsibilities from the job of President and Past-President, lessening the magnitude of the jobs. It is hoped that this will encourage active science teachers to run for these offices. The separation of the Conference treasurer position is still under consideration and will be addressed at a future Board meeting.

In order to address the Treasurer issue, the Board enacted a significant Constitutional change. The Association Treasurer's position is no longer an elected office. It is now an appointed position subject to approval of the Board of Directors. The Treasurer will serve a five-year term and will no longer be a member of the Executive Committee. The Treasurer will be invited to attend Executive Committee meetings but will not be entitled to a vote. After consideration, Mr. Weiner agreed to accept the appointment as Association Treasurer. He started this term immediately after approval by the Board of Directors.

Three representatives on the Board from the Suffolk Section, myself included, voted "No" to these Constitutional changes. We believe that the power of the office of Treasurer should not be invested in one person for an extended term and that term limits should remain. We strongly felt that for the long term health of STANYS, the Constitution should not be altered haphazardly, and that the Treasurer position should have remained an elected one.

The vast majority of the remaining Board members voted "Yes" to changing the Constitution and the office of the Treasurer. In practical terms, this will not affect the day-to-day operations of STANYS. The long term ramifications, if any, are yet to be seen. ■

A Tale of Two Cities *(continued from page 9)*

we had so much fun with all the water games. No, no, since it was afternoon, no young kids were there so we didn't have to bully anyone to play. Some of the areas of the science center are *Energy City, Planet Earth, River of Life, Exploring Space, Invention Dimension, Picture of Health, Sports Lab, Forces in Motion, Sight and Sound Experience* and a changing exhibit that current houses Rube Goldberg machines designed for kids. Every area has lots of fun things to do and to interact with. We spent many hours there, literally being the last ones out of the building at 5 pm.

Each of the science centers visited was a good experience, with or without kids for anyone who just enjoys learning. Could that be you? ■

STANYS Suffolk Section provides the science educators of Long Island the Opportunity to Make a Difference in Education in Suffolk County!

Be a part of your professional organization -

JOIN US TODAY!

***Your membership in STANYS includes membership in the Suffolk Section –two for the price of one*!**

Use the membership form in this Newsletter, or join electronically using the form

at the STANYS website:

http://www.stanys.org

For more information, email Sheila Schumann, Vice-Chairperson, Membership at: *sheilah_s@yahoo.com*

Scenes from the Annual Conference & Board Meeting

Susan Marie Frontczak as Marie Curie

Suffolk STANYS Members of STANYS Board of Directors (seen in the front row left to right), Gary Vorwald, James Ripka, Alice Veyvoda and Angela Lukaszewski .
(Not pictured: Brian Vorwald, Vice President of STANYS)

Join us for our monthly meetings. Most are on the first Thursday of the month.

Dates for 2011 are: Feb 3, Mar 3, April 7, May 5, June 2

Meetings are at 7:00 p.m. at BOCES II on Deer Park Ave., Dix Hills

Science Teachers Association of New York State, Inc.
Suffolk Section (SCSTA)
P.O. Box 5101
Hauppauge, NY 11788-0611

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Subjects taught or position_____

Email: _____

Last year of membership_____

Section to which you wish to belong **Suffolk**

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