



The CRCST Quarterly



Volume LXVIII No. 1

65 Years

Spring 2013

What's new in CRCST? Susan Clay, CRCST President

Spring is in the air. That means that the end of another school year is approaching. This will be a busy spring with the release of the Next Generation Science Standards, the implementation of the Ohio Science Standards, and the move toward new assessments. The new standards are emphasizing the use of practices of science (inquiry) and CRCST is proud to be associated with Northeastern Ohio Science and Engineering Fair that exhibits the excellent work of 600+ future scientists. Events like science fairs, robotics events, and science camps can help encourage our students to explore their natural curiosity about the world around them and maybe how to improve the environment around them. More about NEOSEF is found in the newsletter.

April 25, 2013 is the date for the CRCST Spring Symposium to be held at John Carroll University. The meeting will take place in the Dolan Science Center from 4:30 to 7:00 PM. The theme will be Biomimicry. The guest speaker will be Dr. Peter H. Niewiarowski, Dept. of Biology, University of Akron. Information about the spring symposium will be updated on the CRCST website as details and the application are finalized. I hope that you can attend.

Hope that the rest of spring goes well and remember CRCST is also on Facebook.

CRCST Spring Symposium Thursday, April 25th 4:30 pm - 7:00 pm

The Spring Symposium this year will be held at the Dolan Center for Science and Technology on the John Carroll University.

The guest speaker will be Dr. Peter H. Niewiarowski from the Biology Department of the University of Akron who will be discussing his work in Biomimicry.

The schedule for the evening

4:30 - 5:00

Registration, Snacks, Networking

5:00 - 5:45

Dr. Peter H. Niewiarowski

5:45 - 6:00

Break

6:00 - 7:00

Smaller group discussions on topic

Please check the CRCST website to get updated details and the registration form

Biomimicry is an innovation method that seeks sustainable solutions by emulating nature's time-tested patterns and strategies. The goal is to create products, processes, and a new way of living that are well adapted to life on earth over the long haul. An example of how this works is the solar panel that is inspired by a

leaf. STEM education is more than science, it includes technology and engineering. Biomimicry can offer an outlet to promote how science is translated into the real world and how it can be used to solve some of the problems that the world is facing. Humans can learn much by paying attention to how nature (plants and animals) deals with the environment. Dr. Niewiarowski research includes what makes gecko toepads "sticky". The Tokay gecko can generate the equivalent of more than 100 times its own body weight in clinging force using its dry adhesive toepads. Their biology can inspire engineers to make better adhesives.

North East Ohio Science and Engineering Fair

CRCST was represented at the 2013 NEOSEF held March 4-7 at John Carroll University where we awarded 9 students with cash awards. CRCST has a representative on the NEOSEF Board and several CRCST members helped on Monday night with the 600+ students setting up their exhibits. Tuesday afternoon 27 members of CRCST judged 428 projects in 9 categories for 7th and 8th grades. Susan Clay appreciates all the help that members donate to help promote science inquiry in students by serving as judges.

Thursday evening the following awards were given by CRCST:

Sam Brooks Award for Physics

Maria Nahra
St. Angela Merici Elementary

Sandy Eiser Award for Chemistry

Riana Suttles
Noble Academy-Cleveland High

Irene Heller Award for Chemistry

Noah Horowitz
Agnon Elementary

Behavioral Science

Matthew Locker
St. Francis of Assisi Elementary

Earth/Space Science

Meghan O'Reilly
St. Helen Elementary

Engineering Science

Greta Noeth
Incarnate Word Academy

Environmental Science

Tobias John Engel
St. Francis of Assisi Elementary

Health/Medicine Science

Vinayak Kurup
Birchwood Elementary

Math/Computer Science

David Gold
Gross Schechter Day

Next year the NEOSEF will be held at Cleveland State University March 10-13, 2014. Prejudging occurs from 1:00 - 3:00 PM (a chance to look over projects before students are in the gym). Judging with students starts at 3:00 PM. Judges are usually done by 5:00- 5:15 and then invited to a Judges Reception. If you are interested in helping with the judging on Tuesday, March 11 , 2014, please send an email to suzieclay@aol.com.

The Greater Cleveland Aquarium One Year On
Written by Ray Patacca

What a year it has been! January marked the one-year anniversary of the Greater Cleveland Aquarium opening its doors to the public. Since that first day we have welcomed more than 400,000 guests, taught nearly 30,000 school children, served 6,930 pounds of frozen fish to our fish animals, made 494,200 gallons of saltwater, and our divers have spent more than 1,300 hours underwater. If you haven't been here yet, you definitely don't want to miss what our second year has in store.

If you have been able to visit us, whether at the CRCST Fall Conference or in our early days of operation, well, a lot has changed at the aquarium even since then. Since our opening, the aquarium has constantly been seeking ways to improve our guest experience, which includes three new exhibits. The first was our jellyfish exhibit, or jellies as the aquarists refer to them, which features the fascinating life cycle of this unusual invertebrate. The adult jellies swim over your head in our unique overhead aquarium that is located in one of the FirstEnergy Powerhouse's iconic smoke stacks. We also sent our American Alligators on a vacation back to Florida to make way for African tortoises. Tortoises are much more touchable than alligators, as you can imagine, and they allow our guests to interact with them inside their habitat in the aquarium. Most recently, Sea Monsters have appeared on the second floor of the Powerhouse! Part of the second floor has been transitioned into a brand new aquarium space called the Exploration Station. Currently this space is home to Sea Monsters, a traveling exhibit created by MOTE Marine Laboratory in Florida. The exhibit will be on display through April 15. We are proud to say that all three of these exhibit spaces have been designed and built by our talented aquarium staff...in house!

When Sea Monsters leaves the Aquarium in April, the Exploration Station will house our growing education program and be available for our guests to explore in the afternoons and weekends. It will continue to boast many unusual sea creatures such as frogfish, batfish, sea apples, and nudibranchs. Most importantly, the new Exploration Station offers us the opportunity to create more hands-on experiences for the students who visit us each year.

Last winter, we launched our education program with three standards-based education offerings. This year we've added five more on-site school programs, along with Girl Scout programs, Homeschool Tuesdays, teacher workshops and overnights. We even created a behind-the-scenes tour for AP high school and college-level marine biology students. Next school year look for programs about sharks

along with enhanced curriculum guides.

Working with area school districts to create learning opportunities at the Greater Cleveland Aquarium is a high priority for the education department. It's also crucial that these programs fit into the district's scope and sequence and meet the state standards. We are currently working with CMSD to place an aquarium in every 4th grade classroom. These aquariums are being generously funded by a Dominion Grant. A fourth grade aquarium experience is planned for next school year as part of the Learn, Protect, and Stay Collaborative of five Cleveland informal science institutions. In addition to working with school districts, we have also begun to work with project-based learning schools, specifically the second grade at Old Trail, in creating specialty programming to meet their needs.

We are also extremely excited by the development of an outreach program sponsored by the North East Ohio Regional Sewer District. This program presents the changes in Ohio's rivers and lakes in a theatrical and imaginative way that includes actors, and will bring a traveling touch tank right into your classroom! This interdisciplinary program combines both science and history to trace how the aquatic environment has changed in Ohio over the last 200 years.

And last, but not least, this summer we launch our Summer Camp program.

Whew, it has been quite a year! Will there be more excitement? Of course, there will be! Visit our website www.greaterclevelandaquarium.com or Like us on Facebook to keep up with our progress.

Local Science Happenings

See you at Fair on the Square Monday, April 22

Cleveland Botanical Garden

www.cb garden.org

Garden open until 9 pm Wednesdays and Fridays in April

Big Spring: Celebrate Spring in a Big New Way
Saturday, March 23—Sunday, April 28

Hershey Children's Garden opens for the season!
Saturday, March 23

Spring Day Camp
March 28 or April 4

Ohio Gardening Resources
Saturday, May 4

The Science of Play Based Education Symposium
Friday, May 17

BotaniCool Summer Camp
June 17-21 or June 24-28

Cuyahoga River Community Planning Organization

Richmond Heights City Hall Tree Planting
Saturday, April 27

For more information contact Cathi Lehn
(lehnc@crcpo.org)

Cuyahoga County Solid Waste District

In an effort to provide Cuyahoga County residents with how-to-compost instructions and affordable compost bins, the Solid Waste District organized 8 Compost Seminars.

Please register on www.cuyahogaswd.org.

Wednesday, April 17, 2013

Parma Heights

6:30 p.m.

Cassidy Theater, 6200 Pearl Road

Wednesday, May 15, 2013

Cleveland

6:30 p.m.

Collinwood Recreation Center

16300 Lakeshore Blvd.

Thursday, May 30, 2013

Combination Rain Barrel Workshop and Compost
Seminar

Mayfield Heights

6:30 - 8:30 p.m.

6306 Marsol Road

Clutter Buster Day on May 18, 2013 from 10 am to 2 pm at 4750 East 131 Street, Garfield Heights. Residents can drop off of small appliances, electronics and shredded paper.

Thursday, June 27, 2013

The Solid Waste District can walk you through the steps to launch or expand a successful workplace waste reduction and recycling program through our business seminars.

Session 1: Successful Recycling in your Workplace
9:00 a.m.-10:45 a.m.

Session 2: Contracting for Waste & Recycling Services
11:00 a.m.-12:00 p.m.

Sign up on www.cuyahogaswd.org

**The Holden Arboretum &
Cleveland Botanical Garden**

Go Outside and Play! Why Our Parents Had it Right—Lecture for parents and educators

Thursday, April 18, 7pm

The Andrews Osborne Academy, Willoughby, Ohio

Free event, but registration is required.

Ken Finch, president of Green Hearts Institute for Nature in Childhood, Omaha, Nebraska, will help us to understand the value and impacts of nature play and how we can restore it to our children's lives — whether in backyards, neighborhood parks, child care centers or schoolyards. Finch will use anecdotes and research data to inspire us to head home with new ideas and passion for restoring the true nature of childhood!

Creating a Nature Play Space: Big or Small

Workshop for parents and educators

Friday, April 19, 8:30am - 3pm

The Holden Arboretum, Kirtland, Ohio

Cost \$30

Would you like to expose the young children in your life to more nature play? Join us as we explore the nuts and bolts of how to accomplish this in your space. Ken Finch, president of Green Hearts Institute for Nature in Childhood, will share the whys and hows for successful nature play. Hear from local early childhood organizations that have taken the first step to incorporate nature play at their sites. Challenges,

features, costs and support that are needed for success will be covered. First hand experiences in Holden's own Buckeye Bud's Adventure Woods will be included. This workshop is for anyone with the desire to start or add to their outdoor nature play space.

**The Science of Play Based Education
Symposium and Workshop**

Friday, May 17, 9am – 4:30pm

Cleveland Botanical Garden, Cleveland, Ohio

Join David Sobel, professor at Antioch University, New Hampshire, as he shares the solid foundation of data that suggests that environmental and place-based education can improve test scores, change teacher behavior, improve school climate, increase stewardship behavior and yes, even improve environmental quality. The morning will continue with a panel discussion led by the Case Western Reserve University Schubert Center for Child Development and an exploration of the Hershey Children's Garden. The afternoon workshop "Applying the Small Worlds Principle in Curriculum Development" will help guide teachers in applying these principles in their classrooms. The morning symposium is free and open to the public (registration is required, parking not included, David Sobel's book for first 150 registrants). Full-day participation (registration required - includes lunch, parking and educational materials) is \$35 for members, \$42 nonmembers.

Learn How to Play in Nature

Hands-on activity sessions for educators and parents
9am – noon. \$15 members, \$20 nonmembers per session.

Play on Land: Friday, June 28 or Saturday, June 29
Holden

Play in Water: Friday, July 26 or Saturday, July 27
Holden

Play in the Garden: Friday, Aug. 9 or Saturday, Aug.
10 CBG

Learn about the benefits of outdoor play, how kids interact with their surroundings and how you can facilitate and encourage these activities in your own space or those you visit. Experience these activities

first hand. Take one session or sign up for all three to increase your repertoire of fun-filled outdoor activities to share. These adults-only workshops will have you thinking and playing like a kid again!

To register for events at The Holden Arboretum or the lecture at Andrews Osborne Academy visit www.holdenarb.org

To register for events at Cleveland Botanical Garden visit www.cb garden.org

Grants for Educators

Seeds for School Sustainability
NEO USGBC's Green Schools Committee
Micro-Grant Program
Up to \$250.00

A classroom teacher at any K-12 school recognized by the State of Ohio in Northeast Ohio can submit a page and a pitch to fund a school based sustainability project.

Please fill out the application on the page that follows and be prepared to attend the next NEO USGBC social event to pitch your idea to the Green Schools Committee and NEO chapter members. Money can be competitive. Members of the Green School Committee will read applications and determine the finalists. You'll be contacted with the date and time of the next pitch event. These events are held four times a year.

At the pitch events, chapter members will vote for their favorite sustainability project from the finalists. Money will be with a month of the pitch events, and the project must start within 6 weeks of award.

Some More Particulars:

Previous Seeds for School Sustainability winners are not eligible to submit for one year from their pitch date. All others are welcome to submit, including those who previously submitted and were not selected as finalists.

Not all submitted proposals will be selected to present

during pitch events. The Green School Committee will pre-screen submissions for appropriate projects and content, need, etc...

Thoughtful, but brief responses are encouraged. Selected finalist applicants must be present to pitch their project proposals to chapter members at the pitch event.

By submitting a project proposal and accepting micro-grant money, the winning applicant grants permission to NEO USGBC to use applicant's proposal and the findings in future promotional materials.

Projects involving green building and LEED are preferred.

Seeds for School Sustainability
NEO USGBC's Green Schools Committee
Micro-Grant Program

Please include the following:

- Project Name
- Contact Name
- School Name
- City
- Phone
- Email

Project Description (5-10 sentences)

Describe the need for this micro-grant and how the money will be used (5- 10 sentences)

How is this project related to sustainability? (3-5 sentences)

What is the time span of the project and when will the project be complete? (3-5 sentences)

How do you plan on sharing the results of your project with us and the general public? (3-5 sentences)

Please return to:
Kathleen Rocco
krocco@cuyahogacounty.us
or c/o CCSWD
4750 East 131 Street
Garfield Heights, OH 44105

Professional Development Opportunities

The Lake Erie Nature and Science Center and NASA Education are jointly presenting professional development related to the new Ohio Earth and Space Science Standards related to the solar system for 5th and 7th grade teachers. Concepts will be presented via Kinesthetic, hands-on, and discovery instructional strategies.

Trainings will be held on two consecutive days during after school hours.

April 23 and 24, 2013; 4:00 p.m. - 6:00 p.m.

Lake Erie Nature and Science Center Planetarium
28728 Wolf Road, Bay Village, Ohio 44140
440-471-8360

Electronic registration:
<http://teenyweenyurl.com/be6>
Phone registration: 216-433-6372

H H M I Biointeractive.org

FREE Summer AP Biology
Professional Development Workshop

The goal of this one day FREE summer workshop is to highlight HHMI BioInteractive resources that pertain to the new AP Biology curriculum framework. All of the classroom resources on BioInteractive.org are free and this workshop will include activity completion, demonstrations, short films, computer based learning, overviews, and a tour of the website.

Rocky River Middle School, 1631 Lakeview Avenue,
Rocky River, Ohio (Northeast, Ohio)
Thursday, June 20, 2013
8:30am – 4:00pm

Cost: The workshop is presented for FREE.
Lunch will NOT be served but a break will be provided. There are several lunch options near the school or you can pack a “brown-bag” lunch.

Presenter: Ann Brokaw, AP Biology Teacher, Rocky River High School, Rocky River, Ohio

Ann is in her 20th year in the classroom and 19th in AP Biology. She has presented at several national, regional, and state conferences; and has written several classroom resources for the HHMI BioInteractive.org website. She is a participant in the NABT/BSCS AP Biology Leadership Academy and a regular contributor to the College Board’s AP Biology Online Community.

Registration: Registration is required as space is limited. Please email Ann directly for a registration form: Abrokaw44@gmail.com

Center for Mathematics and Science Education, Teaching and Technology John Carroll University

Science Inquiry:
Increasing Student Learning and Motivation using
Discrepant Events
Grades 4-8
June 24-25 or July 17-18

UpCycle Science:
Ordinary Materials & Extra-Ordinary Science
Grades 3-5
June 26-27 or July 15-16

Middle Grades Space & Physical Science:
Solar System, Universe, Force & Motion
Grades 5-8
July 29, 30, 31 & August 1

Middle Grades Earth, Life and Force & Motion
Grades 5-8
August 5-8

21st Century Classroom Technology for Teachers
All Grade Levels
July 17-20 or July 22-25

Graduate Credit Available
Additional courses to be added soon!
Please visit www.jcu.edu/cmsett for more details

Phillips Exeter Academy

Presents

3rd Annual Biology Institute at Exeter
Sunday, June 23 – Friday, June 28, 2013

Spend a week immersed in biology and enjoy learning the latest biology teaching techniques in a state-of-the-art science education facility at Phillips Exeter Academy. Geared towards secondary school Biology/Life Science and Environmental Science teachers.

Participants register for one of the following
Week-Long Courses:

*Teaching Biology Around the Table:
Hands-On, Discussion-Based Learning*

Teaching Biology to the Adolescent Mind

Molecular Biology Techniques

And four of the following
Advanced Technique sessions:

The New AP Biology Lab Curriculum

*Basic Laboratory – Techniques, Management,
Organization and Ordering*

*Enzyme Activity using TI-Nspire CX
and Vernier Probes*

*Teaching Evolution with Web Resources-Tools
Darwin Never Had*

*Imaging Technology in the Biology Classroom From
the GOPro to the iPad and Beyond*

1/2 day birding field trip to Plum Island, MA

All day field trip to Coastal NH

1/2 day field trip to the Harvard Natural History
Museum, Cambridge, MA Professional development
credit

For complete conference information, visit us at
www.exeter.edu/bie

Geauga Soil and Water Conservation District

Soil to Spoon

Project Food, Land and People (FLP)

Teacher Workshop

May 9, 2013

3:30pm to 7:00pm

Hastings Dairy Farm, Burton, OH 44021

Project FLP is 55 hands-on lessons for grades K-12, which are aligned to the Ohio Academic Content Standards. The lessons explore the interdependence of agriculture, the environment and human needs.

For more information visit
www.foodlandandpeople.org.

The cost to register is \$15.00 for the first fifteen workshop participants and is payable by cash or check to Geauga SWCD, or pay with credit card by calling the office at 440-834-1122. Payment must be sent with your registration form. The cost covers workshop supplies and tour fees. Each participant will receive a Project Food, Land and People Guide with over 50 activities, a variety of other educational tools and resources and a private tour of Hastings Dairy Farm.

Katie Nainiger at knainiger@geaugaswcd.com
440-834-1122.

Thank you to the Western Reserve RC and D for the grant which will provide guides or CD's to the first 15 participants. Upon receiving your registration we will notify you if you are not one of the first 15 at which point you will have the opportunity to pay the additional cost of \$55.00 or receive a refund.

CRCST Spring Symposium

April 25th

4:30 pm—7:00 pm

John Carroll University

Dr. Peter H. Niewiarowski

Biomimicry; University of Akron

Is your membership up to date? Will it expire soon? Check the expiration date printed on your mailing label.

If it is time to renew your CRCST and/or CRABS membership, go to our website for the membership form to print and mail in. Even better, register for the Spring Symposium (see inside for details) and renew your membership at the same time!



<http://www.crcst.org>



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