



# CRCST Quarterly Newsletter

Volume LXXVIII No. 2

Fall 2017

## Upcoming Events:

**FALL CONFERENCE**  
**November 4, 2017**  
**7:30 a.m. – 12:40 p.m.**  
**John Carroll University**  
**Student Center**  
***Info inside!***

## INSIDE THIS EDITION

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Happy Fall!

Is it really autumn already? I hope you were able to relax this summer and are renewed for this school year! I always forget how hectic those first few months are before you get into the groove of things. I always want to try new things and always need to step back (and drink my pumpkin spice coffee) to remind myself that I can’t do it all at once!

This summer I recently discovered an amazing website to invite science professionals into your classroom all from the comfort of your computer! This summer, while teaching summer school, I stumbled upon Microsoft Educator Virtual Fieldtrips. By using Skype, you can sign up or contact various educated individuals and scientific minds. By focusing on manatees and penguins for our math and language arts summer school curriculum, I was able to integrate science into summer school! This fall my teaching partner and I are incorporating more of these experiences for our students, including topics such as fossils, elephant sanctuaries and penguin breeding in Antarctica!

I hope you have found at least one thing to change in your classroom whether it be a practice, topic or physical item. But if you have not, never fear! The Fall Conference is here! We are looking for anyone who would like to share something with others and for people who want to learn something new! There are always great presenters and vendors to experience at the fall conference.

I know I will be trying to incorporate more hands on activities in the classroom for my primary students and connecting more current events to the curriculum. I can’t wait to see who will present at the conference so I can gather more ideas for my room.

As my term as president comes to an end, I would like to thank everyone on the Board for being supportive and helpful throughout the past year. The great events CRCST has held in the past 12 months would not have been the same! I would like to encourage everyone to visit the Cleveland Metroparks, Cuyahoga Valley National Park or any local wildlife area. The leaves will be turning and falling before we know it and I know I look forward to a few beautiful hikes before the first snow falls.

Cordially,

Cassidy Berkheimer  
CRCST President

### 2017 CRCST/NSTA Grantee – Davida Pantuso

#### Literacy and Science: A natural combination

This year, I was the recipient of the CRCST grant that provides financial assistance for teachers to attend the National NSTA Conference which was held in LA. NSTA Conferences are excellent professional development opportunities that each science teacher should have the chance to attend. Teachers, scientists, professors, industry leaders, authors, and other experts run sessions that cover a wide range of topics, technologies, grade levels, and activities. There is literally a session for everyone. In addition to quality, engaging sessions, NSTA provides opportunities for you to interact with scientists and authors. Bill Nye and Andy Weir (author of *The Martian*) were the guests of honor for this year's conference. Both spoke at various events, but NSTA went above and beyond with Andy Weir. 30 teachers were selected to have dinner with him, and they were given a signed book of *The Martian*! I made it to the semi-finals, but unfortunately, I didn't make the final cut. These special events add an extra level of excitement to the conference and they help to motivate and inspire teachers to continue to create relevant and engaging lessons for their students.

I was a high school Earth Science teacher for several years. In 2016, I decided to pursue my PhD at Kent State University. As part of my graduate assistantship, I was asked to teach an early childhood science methods course. I gladly accepted; however, I was terrified and completely out of my comfort zone! How was I going to teach pre-service teachers how to teach science? Especially when so many elementary schools are cutting science in order to increase instructional time for language arts and math? After taking a deep breath, I decided to approach the class from a literacy angle. Many early childhood teachers are really comfortable with literacy, and there are so many ways to incorporate literacy into science lessons.

Little did I realize that NSTA is committed to helping elementary teachers incorporate science and literacy! Attending NSTA did a great job with helping me to teach this course with confidence. Not only was I able to attend numerous sessions geared towards incorporating literacy into science classrooms, but I was able to meet several authors of children's science books during author panels. Meeting these authors was my favorite part of the conference. They have such a passion for helping young children discover the many wonderful aspects of science, and the books that they wrote, were incredible. To top things off, several publishing companies were in the exhibit hall selling books for \$5.00! Needless to say, I had to find a second "suitcase" for my trip home!

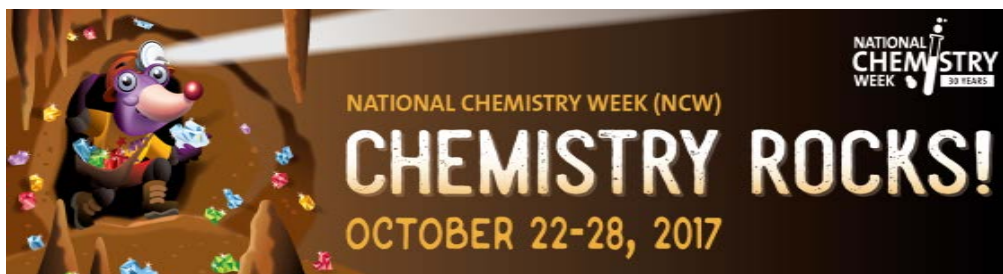
There were a few books and resources that really stood out to me. Andrea Beaty, author of the *Rosie Revere, Engineer* series, introduced me to two great resources that are FREE! Like most teachers, I love freebies! The first resource that she introduced me to was *Story Time from Space* ([www.storytimefromspace.com](http://www.storytimefromspace.com)). Astronauts aboard the International Space Station read children's books and conduct experiments for school children. Videos of the readings and experiments are on the website and teachers can view them whenever it fits into their schedules. What a great way to introduce school kids to real astronauts! The second resource that she introduced me to were the free downloadable posters that go along with her books. The posters encourage students to "read, question, and think." (<http://www.andreabeaty.com/free-downloadables.html>)

Author Ashley Spires and her publishing company, Kids Can Press, send free copies of her book *The Most Magnificent Thing* to elementary schools. The copies are paper versions, and they are much smaller than the original book; however, there is a stipulation. Children are asked to tear the book apart in order for them to make their "most magnificent thing." This is a fantastic way to incorporate or to introduce engineering into lessons.

Finally, I was introduced to the series *Picture Perfect Science Lessons: Using Children's Books to Guide Inquiry* (<http://www.pictureperfectscience.com/>). Authors, Emily Morgan and Karen Ansberry, who are both former elementary teachers, wrote this series to help K-5 teachers integrate science and reading in an engaging, kid-friendly way. Each lesson is written using the 5E model and includes, easy-to-understand background knowledge, resources, and suggestions for further inquiry. These books are perfect for the pre-service teachers who I teach.

NSTA LA took place during the middle of the semester. Attending it really helped me to finish the semester on a strong note. However, I am looking forward to teaching this class again in the spring. This time, I will have an entire semester to incorporate the resources that I discovered, and to use new strategies from the conference.

Thank you CRCST for providing this wonderful grant! I highly encourage everyone to apply for it. Those who receive it will enhance their teaching greatly. This year's National NSTA conference is in Atlanta from March 15-18, 2018 (<http://www.nsta.org/conferences/national.aspx>).



The 30<sup>th</sup> Annual National Chemistry Week is coming up October 22-28, 2017, sponsored by the American Chemical Society (ACS). The goal of this week is to promote the value of chemistry in everyday life. The theme this year is Chemistry Rocks! This fits well with the Ohio 6<sup>th</sup> grade Earth Science standards.

Some ways you and your students can participate:

- The Cleveland ACS has developed a hands-on program that will be presented by local volunteers at many of the Cuyahoga County Library branches. See the Events link on the County Library homepage for dates and times. Or go to: <http://bit.ly/2fnKlnh>.
- Students in grades K-12 can participate in an illustrated poem contest offering ca\$h prize\$. For more information: <http://bit.ly/2wuDx2l>.
- The national ACS offers a number of resources, which can be found at: <http://bit.ly/2dUyFhD>.

## THE 2018 NEOSEF AWARDS

On March 12 to March 15, between 400 - 500 students will join together at Cleveland State University to demonstrate their knowledge of an area of science at the North East Ohio Science and Engineering Fair. CRCST has supported the program and the students by sponsoring 9 awards for the 7th and 8th graders every year. We give \$100 Award for Biology, Chemistry, and Physics each along with \$50 Award in Medicine/Health, Environmental Science, Behavioral Science, Earth Science, Computer/Math, and Engineering. **Members of CRCST and other supporters serve as judges** and every 7th and 8th grade project gets judged on the Tuesday afternoon. We pick the best project in each division and the students find out on the Thursday evening Award Ceremony.

Susan Clay serves as the CRCST Board Representative on the NEOSEF Board. She also is responsible in finding judges for the CRCST Awards. If you are interested in helping this year, contact her at [suzieclay@aol.com](mailto:suzieclay@aol.com) or at 440-570-1155. Judging will be from 3:00 to 5:30 PM on Tuesday, March 13 and all judges are invited to a judges' reception at 5:30 PM. If you have a later release time in the day, still consider helping with the judges.

## GEMS SCHOLARSHIP to NSTA

The last few years, CRCST has offered up to two \$800 awards from our GEMS account to aid in a teacher's professional development. The CRCST Board will decide at the February meeting to award the scholarships.

This scholarship is awarded to a CRCST/NSTA member to be applied to the expense of attending the NSTA National Conference or a Fall Area NSTA Conference. The 2018 National Conference will be in Atlanta, Georgia (March 15-18, 2018) and the 2018 Fall Area Conferences are in Reno NV (10/ 11-13), Gaylord National Harbor, MD (11/ 15-17), and Charlotte, NC (Nov. 29 - Dec. 1).

A copy of the application is in the newsletter or can be obtained from Susan Clay (440-570-1155 or [suzieclay@aol.com](mailto:suzieclay@aol.com)).

The applications are due January 15, 2018.

## The Cleveland Botanical Garden

### NEOEA Day 2017

Amazing Adaptations: Cool Plants and Animals of Costa Rica and Madagascar

Experience the Costa Rican Cloud Forest and the Madagascar Spiny Desert without ever leaving Cleveland. Get a behind the scenes tour of these amazing habitats at the Cleveland Botanical Garden. Meet the animals up close and learn how these topics relate to your classroom standards. Leave with classroom activities and an understanding of why authentic experiences in any habitat are worth the effort for both you and your students.

**Date:** Friday, Oct. 13, 2017

**Time:** 9 a.m. – noon

**Location:** The Cleveland Botanical Garden, 11030 East Blvd, Cleveland, OH 44106

**Cost:** \$25 NEOEA Members, \$35 non-NEOEA members\*

\*non-NEOEA members pay \$10 day of workshop



**Educator  
Resource  
Center**

CLEVELAND MUSEUM OF NATURAL HISTORY

Over 30 years of supporting science education

### 2017 – 2018 Educator Workshops

The **Educator Resource Center** (ERC) provides interactive workshops that connect educators to trending teaching methods, best practices, and hot topics in science education.

Workshops are open to all educators, including traditional classroom teachers, homeschool parents, scout leaders, pre-service teachers, and informal educators.

Each workshop correlates with Ohio's Learning Standards and includes interdisciplinary connections. Certificates of participation are included, which cite contact hours for use in obtaining continuing education units (CEU's.)

## How to Register for Workshops

- Register online at <https://cmnh.org/educatorworkshops>
- If you are having trouble registering online, contact the ERC during open hours at 216-231-2075, or email [erc@cmnh.org](mailto:erc@cmnh.org)

### CANCELLATION POLICY

- Workshop cancellations must be received at least **8 days** prior to the scheduled workshop to receive a refund.
- No refunds will be issued for cancellations made within 7 days of the workshop.

### STARLAB BASIC TRAINING

Educators of all grades

**Wednesday, October 4, 2017: 5:00 pm – 6:30 pm**

**\$10 ERC members; \$15 non-members**

Bring the night sky to your students with STARLAB portable planetarium

- Training session is required before renting STARLAB portable planetarium
- Learn how to set up, take down, and pack the planetarium
- Interact with a CMNH astronomer and learn how to use the lab to teach some basic astronomy content

Sponsored by: 

## ERC ELEMENTARY SCIENCE PALOOZA

Educators of grades 3 - 5

**Wednesday, October 11, 2017: 4:30 pm – 7:30 pm**

**\$15 ERC members; \$20 non-members**

Explore 2 new ERC kits developed by Ohio certified teachers

- Investigate hands on activities from our new Electricity & Ecosystems kits
- Learn how each kit incorporates Literacy, Math, Science, and more
- Tour the new Creatures of Light exhibit
- Chance to win a FREE 1-year ERC individual membership
- Refreshments provided



## NATURE IN THE CITY: FROM THE CLASSROOM

Educators of grades PreK - 2

**Wednesday, November 8, 2017: 4:30 pm – 7:30 pm**

**\$5 ERC members and non-members**

- Back by popular demand!
- Explore activities from the Museum's new edition of the *Nature in the City* curriculum guide
- Interact with CMNH Naturalists and learn how to connect students to nature from an urban classroom
- Receive a FREE copy of the of the *Nature in the City* activity guide – adaptable for grades PreK - 5!
- Includes a FREE 1-year ERC individual membership
- **SUTQ Approved – 3 hours**
- Dinner provided



## UNCOVERING THE EVIDENCE: A FORENSIC STUDY

Educators of grades 6 - 12

**Wednesday, November 29, 2017: 4:30 pm – 7:30 pm**

**\$15 ERC members; \$20 non-members**

- Practice being a forensic scientist by developing a biological profile and identifying the unidentified person
- Participate in some crime scene activities involving vandalism, social media sleuthing, and analyzing suspicious body fluids! Take your discoveries back to the classroom and see if your students can solve the case!
- Interact with Dr. Nicole Burt, CMNH Curator of Human Health and Evolutionary Medicine, and learn about forensic anthropology
- Tour the Museum's DNA Lab and Hamann-Todd collection, the world's largest, most well documented human anatomy assemblage
- Refreshments provided



## **\$SMARTPATH: FINANCIAL LITERACY FOR GRADES 1-6**

Educators of grades 1 - 6

**Wednesday, December 6, 2017: 5:00 pm – 6:30 pm**

**FREE AND YOU RECEIVE \$100 in Amazon gift cards for attending and utilizing the curriculum**

- Learn how to embed finance and economics education into your curriculum with **FREE** interactive online units for grades 1-6
- Connects to Ohio's Learning Standards for Mathematics and Social Studies
- **Receive a \$50 Amazon gift card for attending \$martPath workshop!**
- Receive an additional \$50 Amazon gift card after implementing easy-to-use \$martPath curriculum

Sponsored by   
University of Cincinnati

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## **Project WET TEACHER WORKSHOP**

November 1<sup>st</sup> and 8<sup>th</sup>, 2017, 4:00 pm - 8:00 pm  
Lake Erie Nature and Science Center  
28728 Wolf Rd, Bay Village, OH 44140



Project WET is a tested innovative curriculum, teaching water resource principles that are correlated to the Ohio Academic Standards.

Discover how to use a water festival format to cover important stormwater related topics with students (K-12) with special emphasis on the Northeast Ohio Regional Sewer District (NEORS) target topics outlined in their Stormwater Fee Education Credit at <https://www.neorsd.org/educationcredits>.

Written for learners of all ages, the activities are easy to use and fun!

Learn about free teacher resources available through Cuyahoga Soil & Water Conservation District.

Workshop Leaders:

Darci Sanders, Lake Erie Nature and Science Center

Ebony Hood, NEORS

Jacki Zevenbergen, Cuyahoga Soil & Water Conservation District

Fee: \$25- includes instruction, materials, and Project WET 2.0 K-12 Curriculum Guide

Early Bird Special—1st (15) registrations will be \$15

Be prepared for chances to win AWESOME DOOR PRIZES such as posters, books, additional activity guides, stormwater reference materials and activity materials.

To register or for more information: Contact Jacki Zevenbergen at 216/524-6580, ext. 1006, [jzevenbergen@cuyahogawcd.org](mailto:jzevenbergen@cuyahogawcd.org) or register online at [www.cuyahogawcd.org](http://www.cuyahogawcd.org)



## Program Announcement

### Akron Global Polymer Academy

<http://www.uakron.edu/cpspe/agpa-k12outreach/>

### NSF Research Experience for Teachers Site: *Research Experience for Teachers in Polymer Engineering*

This program is funded by the National Science Foundation: *Award Number EEC-1542358*

#### Overview:

- Eight week summer program in UA's College of Polymer Science and Polymer Engineering
- Work with a research group in Polymer Engineering, Polymer Science, Chemical and Biomolecular Engineering or Biomedical Engineering
- Learn about fundamental engineering principles
- Translate this knowledge and experience into lessons and units for your classroom

**Who Should Apply:** Middle and High School Science Teachers

**When:** Summer 2018 Dates coming soon.

**Cost:** There is NO FEE for participation. A generous stipend will be provided to participants that attend all required days

#### Questions:

Visit the program website (<http://uakron.edu/cpspe/agpa-k12outreach/research-experience-for-teachers/>)

Contact: Dr. Kevin Cavicchi - [kac58@uakron.edu](mailto:kac58@uakron.edu) or John Fellenstein - [jfellenstein@uakron.edu](mailto:jfellenstein@uakron.edu)

This RET Site will offer an intensive eight week summer research program for a total of 30 secondary STEM teachers over three years (10 teachers/year) from school districts in the Akron, Ohio area. Faculty members and graduate students from the College of Polymer Science and Polymer Engineering and the Departments of Chemical and Biomolecular Engineering and Biomedical Engineering in the College of Engineering will mentor teachers on independent research projects in the faculty members' laboratories. Teachers will also take part in professional development activities including academic and industrial lectures on engineering, field trips to local polymer industry sites, and activities focused on lesson plan development. The graduate students involved will visit the teachers' classroom during the academic year and assist in the delivery of teacher-generated lesson plans. The lesson plans will be distributed on the web. A summer workshop will be held to disseminate results of this work to local teachers. A symposium at the national American Chemical Society (ACS) conference will be held each year to disseminate the results to teachers and academic, government, and industrial scientists and engineers.

This is an incredible opportunity for high school science teachers to have first-hand experience with cutting edge research projects taking place at The University of Akron. If you are looking for a rewarding summer experience, please apply!

John Fellenstein

Content Specialist

Akron Global Polymer Academy [jfellenstein@uakron.edu](mailto:jfellenstein@uakron.edu)

**By Cary Seidman****VOID: THE STRANGE PHYSICS OF NOTHING****Author: James Weatherall**

James Weatherall explains in layman's language – which is to say, free of equations – the hidden structure of what we perceive as empty space. Suggesting that this short book (138 pages of text and another 50 pages of notes and bibliography) is free of mathematical arcana should not lead a reader to expect a simplified, easy to grasp vision of how our concepts of space-time have developed. Indeed, by the time Weatherall reaches the mid twentieth century in his tale, many readers will find the level of complex abstraction quite challenging.

Students of the history of science and mathematics are familiar with the conflict between Isaac Newton in Great Britain and Gottfried Wilhelm Leibniz in Germany regarding the invention of calculus, which seems to have been produced independently by each of them. What many will not know about is their disagreement over the existence of the “plenum.” Newton's view of the universe was that empty space occupied the area between celestial bodies, and, while Leibniz agreed with the plausibility of Newton's construct, for religious reasons he could not accept emptiness, and fell back on an earlier view of Rene Descartes that space was filled with “fine, unobservable stuff” (Weatherall's words), the plenum. The distinction, if there is one, between, “space” and “stuff” is a recurring theme in the book.

Weatherall shows beautifully the connections between James Clerk Maxwell's ideas on electromagnetism and Einstein's conclusion that the velocity of light is an absolute limit. We learn how Einstein's refinement of Maxwell's pioneering work led to another abandonment of the plenum, by the late 19th century called the “aether.” The importance of Hermann Minkowski's work, followed by that of Karl Schwarzschild, on the geometry of space-time, leading to the concept of black holes, takes its place in the narrative. Perhaps the most interesting character to emerge from Void is Paul Dirac, discoverer of the positron, who when asked if he could explain the theoretical framework of anti-matter in layman's terms, replied, “No.” Finally, Weatherall's story moves with equal skill through the relatively recent work of Richard Feynman and Julian Schwinger and their explanations of Quantum Electrodynamics.

At its core, Void is a brief history of physics. Weatherall's unifying theme regarding the nature of space - is it something or is it nothing? - sets it apart from other popular science literature in this genre. Void will not replace Stephen Hawking's A Brief History of Time or Carlos Rovelli's Seven Brief Lessons in Physics on the science teacher's bookshelf, but it holds up very well as a new view of the history of theoretical physics.

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CRCST

Jennie Hughes, Editor





# The Cleveland Regional Council of Science Teachers

National Science Teachers Association National Conference Scholarship Opportunity for Northeast Ohio Teachers.

Two applicants will be granted \$800 each to support their registration, travel and room & board to the NSTA National Convention held in the spring of the year. \$650 will be provided if you are selected from the applicants. The additional \$150 will be provided after you fulfill the post-convention requirements. \$800 may not cover all expenses but it will likely cover the majority of the cost. Applicants may, but are not required to, be from the same school or district. Awardees may count on CRCST members to provide help in all areas. Questions? Call Susan Clay at 440-570-1155.

### Requirements for applicants:

Must be a member of both CRCST <[www.crcst.org](http://www.crcst.org)> and NSTA <[www.nsta.org](http://www.nsta.org)> when the application is submitted.

- Must submit all parts of the application by mail (Susan Clay, 6484 State Rd. 12D, Parma, OH 44134) or email ([suzieclay@aol.com](mailto:suzieclay@aol.com)) prior to the deadline of **January 15, 2018** including:
  - An at least 250 word essay addressing your interest in attending the NSTA national convention.
  - An example of a science lesson that you have used with your students and a discussion of its value to the students, i.e., how did it improve their understanding of the subject of the lesson.
  - A brief discussion of your philosophy of teaching science should be included as well.
  - A letter of recommendation from your principal.
- Following your conference experience you will be required to:
  - Submit an article discussing your experience for publication in the CRCST Quarterly Newsletter of at least 600 words.
  - Present a concurrent session (generally about 50 minutes) at the next CRCST Fall Conference to show how you incorporated information and/or skills gained at the convention into (an) exemplary lesson(s) that you have developed and used in your classroom. You may co-present with the other convention attendee.

**Please include the data below with your application packet**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Home or Cell Phone: (\_\_\_\_)\_\_\_\_\_ E-mail: \_\_\_\_\_

School Name and Address: \_\_\_\_\_

\_\_\_\_\_ ZIP \_\_\_\_\_

NSTA membership number: \_\_\_\_\_ CRCST membership expiration date: \_\_\_\_\_

Grade(s) Currently Teaching: \_\_\_\_\_ Years of Teaching: \_\_\_\_\_

Principal's Name: \_\_\_\_\_ School Phone: (\_\_\_\_)\_\_\_\_\_



**Cleveland Regional Council of Science Teachers**  
**48th Annual Fall Conference**  
**John Carroll University Student Center**  
**University Heights, OH**  
**Saturday, Nov. 4, 2017**

Tentative Schedule

7:30 – 8:15 am	Registration, continental breakfast, networking & browsing vendor displays
8:30 - 9:15 am	Concurrent session I
9:15 - 9:30 am	Annual Membership Meeting
9:30 - 10:15 am	Keynote address
10:20 – 10:50 am	Vendors and refreshments
11:00 - 11:45 am	Concurrent session II
11:55 - 12:40pm	Concurrent session III

Concurrent session topics include earth/space, physical, integrated science and technology for elementary through high school classrooms. Vendors also back by popular demand. Explore other professional science education organizations' displays, and more.

Questions: Manny Mendoza 216-544-3948

**CRCST Fall Conference Registration**

Please use one form per person, copy as needed.

	<i>Early-bird (by Oct. 20)</i>	<i>On-site</i>
Conference only (existing member)	\$30	\$35
1 year CRCST membership & conference	\$45	\$50
2 year CRCST membership & conference	\$60	\$65
3 year CRCST membership & conference	\$75	\$80
1 year CRCST membership & Conference ( <u>fulltime education students</u> )	\$25	\$30

Additional donation to CRCST - \$ \_\_\_\_\_

Name: \_\_\_\_\_ H Phone (\_\_\_\_) \_\_\_\_\_

H Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip \_\_\_\_\_

School/Work Site \_\_\_\_\_

City: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: (\_\_\_\_) \_\_\_\_\_ E-mail \_\_\_\_\_

Make check payable to **CRCST** Mail to: Mark Waner, Dept. of Chemistry, John Carroll University,  
 1 John Carroll Blvd., University Heights, OH 44118

CRCST c/o: M. Waner  
1 John Carroll Blvd.  
Dept. of Chemistry  
University Heights, OH 44118

**Please note your membership expiration date on the mailing label.  
If you need to renew please send in the membership form on  
[crcst.org](http://crcst.org) or even better, register for the fall conference!**

**Inside you will find the application form for an NSTA conference  
scholarship and a registration form for the fall conference.**

