



Fall 2018 Newsletter

Jeff Teeter, editor

In this issue:

[CRCST Fall Conference](#)

[CRCST Scholarship for NSTA](#)

[Friends of Euclid Creek \(FOEC\)](#)

[Environmental Studies Scholarship](#)

[Cleveland Museum of Natural History](#)

[Educator Workshops](#)

[North East Ohio Science and](#)

[Engineering Fair](#)

[University of Akron STEM Opportunities](#)

[Cleveland Metroparks Zoo PD](#)

[Opportunity: Conservation in the
Classroom](#)

[The Rainforest: Medicine Trail brochure](#)

[Cuyahoga County Solid Waste District](#)

[Holden Forest & Gardens article](#)



CRCST Fall Conference

Autumn is here so give a cheer! Join us at the Cleveland Botanical Garden for the Cleveland Regional Council of Science Teachers 2018 Fall Conference on Saturday, November 3rd, at Cleveland Botanical Garden.

The day will begin at 7:30 am with an enjoyable continental breakfast. The first concurrent session will run from 8:30 - 9:15 am in various classrooms. We will have a brief annual meeting after the first session followed by our keynote speaker, Katie Stuble, Holden Forest & Gardens Plant Biologist. Katie will explore the topic of climate change. From 10:20 am to 10:50 am, you can visit the vendor displays and mingle with fellow teachers. The second concurrent sessions will begin at 11:00 am, and the third concurrent sessions will begin at approximately 11:55 am. You are free to explore the Garden after the last session.

Please join your fellow science teachers for a morning of learning and fun at the jewel of University Circle, Cleveland Botanical Garden! Parking is included with registration.

http://crcst.org/CRCST_Fall_2018_Fall_Conference_Form.pdf





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> and NSTA <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) prior to the deadline of **January 15, 2019** 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 it's 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: (____) _____



**Educator
Resource
Center**

CLEVELAND MUSEUM OF NATURAL HISTORY

Over 30 years of supporting science education



2018 – 2019 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

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.

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2018 Workshops

SEWER UNIVERSITY

\$5 — All Grade Levels

Wednesday, October 3, 2018: 7-9pm

Presented by: Northeast Ohio Regional Sewer and Water District

Sewer University is an introductory level workshop put on by the Northeast Ohio Regional Sewer District designed for Northeast Ohioans interested in learning more about the history and future of sewers, water quality, and sustainability in the region. It tells the story from the first Crapper toilet, combined and separate sewers, life on the Cuyahoga and tributaries, to modern day wastewater treatment and deep storage tunnels. Participants will walk away with a diploma where they graduate, sewer cum laude. Light refreshments will be provided.

Sponsored by



BRINGING AN AUTHENTIC BIOMIMETIC DESIGN CHALLENGE TO YOUR MIDDLE & HIGH SCHOOL STUDENTS

ERC Members: \$10 | Nonmembers: \$15 — Grades 6-12

Wednesday, December 5, 2018: 4:30-7:30pm

Presented by:

- **Toby Bothel, TIES (Teaching Institute for Excellence in STEM) Director of Engineering, Design and Fabrication.**
- **Lamalani Siverts, Integrated Bioscience Biomimicry PhD Fellow at University of Akron (Fellowship sponsored by TIES and Avon Lake Regional Water)**

Engineers, scientists, and designers use Earth's 3.8 billion years of R&D as inspiration to solve human problems in the emerging discipline of Biomimicry.

In this workshop teachers will engage in Biomimicry through a hands-on design challenge focusing on an authentic biomechanics problem. They will be introduced to the methodology of biomimetic design including researching the problem, looking to nature to study how nature solves the problem, and application to a human solution. Teachers will be also introduced to the processes of finding resources to inform the design solution and be exposed to accessible technology for use in classrooms to prototype design solutions.

Sponsored by



[Back to Top](#)

THE 2019 NEOSEF AWARDS



On March 11 to March 14, 2019, 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 or at 440-570-1155. Judging will be from 3:00 to 5:30 PM on Tuesday, March 12 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.

Friends of Euclid Creek (FOEC) Environmental Studies Scholarship

The Friends of Euclid Creek (FOEC), a grass-roots, nonprofit charitable organization which advocates for the health of the Euclid Creek watershed offers an annual scholarship in environmental studies. This scholarship was created to aid at least one deserving student in his/her pursuit of a degree in environmental science, including engineering, hydrology, ecology, geology, biology or other fields related to environmental studies.

FOEC seeks applications from high school seniors or college students who are passionate about their study of the environment. At least one \$1,000.00 scholarship to pay for tuition or books is awarded.

Applicants must not have received a previous scholarship from the Friends of Euclid Creek. FOEC could give preference to a student who attends or has attended a school located in Beachwood, Cleveland, Euclid, Highland Heights, Lyndhurst, Mayfield Heights, Pepper Pike, Richmond Heights, South Euclid, Willoughby Hills, or Mayfield Village - the communities in the Euclid Creek watershed. Applicants will be evaluated on the basis of their background and their potential to make a contribution to environmental studies or a related field.

Interested students must submit a one to two-page letter describing their career goals, past volunteer work related to environmental studies, and significant achievements to date. Applicants also must provide a minimum of one letter of recommendation from a teacher, counselor or community member. The scholarship winner(s) must agree to provide a written report by a designated date describing how they spent their scholarship money to advance their education. Additionally, FOEC will invite all past and future scholarship winners to attend the FOEC annual meeting and picnic in order to report on their accomplishments.

Applicants must also be willing to interview with FOEC members, upon request.

Questions concerning the scholarship or application process may be directed to FOEC member Jeanette Evans via email at jeanette.evans@sbcglobal.net. Information may also be obtained at the organization's website at the <http://www.euclidcreekwatershed.org> site.

The Friends of Euclid Creek organization is again delighted to offer this scholarship opportunity and looks forward to helping a passionate student realize his or her educational aspirations.

The Friends of Euclid Creek's mission is to raise awareness about and preserve the natural features of the Euclid Creek watershed.

University of Akron STEM Resources

Middle school STEM contest: The Rubber Band Contest For Young Inventors ([attached flyer](#) and link here: <https://rubberbandcontest.org/>)

High school science teacher summer opportunity: Research Experience for Teachers in Polymer Engineering ([attached flyer](#) and link here: <https://uakron.edu/cpspe/agpa-k12outreach/research-experience-for-teachers/>)

K-12 STEM Resources: Akron Global Polymer Academy ([attached flyer](#) and link here: <https://www.uakron.edu/cpspe/agpa-k12outreach/>)



Professional Development at the Zoo: Conservation in the Classroom

Calling teachers grades 6-12. Join us at Cleveland Metroparks Zoo for an evening of food, learning, and collaboration as we explore ways to facilitate conservation advocacy with our students in the classroom. Learn how to capture student curiosity and shape it into meaningful conservation action while fostering growth of leadership skills and encouraging civic engagement in teens and preteens. Participants will enjoy a catered dinner while exploring the Zoo's conservation efforts and each will take home materials for use in the classroom. Using tools and resources provided we will work together to design classroom-based experiences that can reach beyond the classroom walls to effect real beneficial change for conservation. ***Pre-registration is required. Limited to 30 participants. Educators only.***

Date: October 24, 2018, 5:00-7:00pm

Cost: FREE

Location: Cleveland Metroparks Zoo,
Reinberger Education Building

For more information and to register visit <https://www.clevelandmetroparks.com/zoo/programs-events/2018/zoo-education/professional-development-conservation-in-the-classroom> or call Cleveland Metroparks Zoo, Education Registration at (216) 635-3391.



1 GUAVA *Psidium guajava*

- ◆ This edible fruit contains 2-5 times the Vitamin C of an orange.
- ◆ Bark and leaves are used to make tea that treats diarrhea, vomiting, sore throats, and to clean wounds.
- ◆ Native to tropical Americas.

2 AMAZON LILY *Eucharis amazonica*

- ◆ Induces vomiting.
- ◆ Native people believe that using it to empty the stomach promotes accuracy when hunting.
- ◆ Native to Peru.

3 NERVE PLANT *Fittonia verschaffeltii*

- ◆ Native people make a cold tea mouth rinse from this plant to relieve toothaches.
- ◆ Native to Peru.

4 AVOCADO PEAR *Persea americana*

- ◆ Native people drink a tea from the leaves to clear the liver.
- ◆ It has been shown to lower blood cholesterol levels.
- ◆ Native to Central America.

WARNING: Do not attempt to make your own products from the plants described here. These plants can be DANGEROUS! The native people of the rain forests have developed special skills to prepare and use these plants.

PLEASE do not pick any parts of the plants in this exhibit.

NATURE'S PHARMACY

About 25% of our medicines contain active ingredients derived from rain forest plants, including medicines that treat cancer, heart disease and high blood pressure.

The rain forests are also major sources for products we use everyday, such as rubber, resins, waxes, essential oils, gums, latex, lubricants, as well as nuts, fruits and spices.



■ Rain forests of the world

HOW YOU CAN HELP

Rain forests cover about 2% of the earth's surface, yet contain 50-90% of the world's species of animal and plant life. Every year, 750 million acres of rain forest are being destroyed.

You can help!
Join the Cleveland Zoological Society.
May be reproduced for educational purposes only.
Conservation Education
Cleveland Metroparks Zoo
3900 Wildlife Way
Cleveland OH 44107
216.635.3391

**HEALING PLANTS**

from the World's
RAIN FORESTS

"In the end, the greatest value of the tropical rain forest is its genetic stock, and the enormous potential value it holds for generations to come."

~ Dr. Thomas Covejoy



MEDICINE TRAIL



The Rain Forest
Cleveland Metroparks Zoo

5 SCARLET SPIRAL FLAG *Costus spiralis*

- ◆ Used by native people to stop bleeding.
- ◆ It is also used to relieve coughs, treat eye irritation, stop nose bleeds, and relieve stomach aches.
- ◆ Native to South America.

6 LIPSTICK TREE *Bixa orellana*

- ◆ Used as a dye for coloring fabrics and body paint.
- ◆ Used as an ointment to treat skin and eye problems.
- ◆ Native to tropical Americas.

7 ARROWHEAD VINE *Syngonium podophyllum*

- ◆ Used by native people to relieve the sting of the bullet ant. It also treats sores, dry skin, fungus, itching, bruises, and rashes.
- ◆ Native from Mexico to Bolivia.

8 SWISS CHEESE PLANT *Monstera deliciosa*

- ◆ Its fruit is edible and tastes like banana and pineapple combined.
- ◆ The root is used to make a remedy for snakebites. A root infusion can be drunk daily for arthritis.
- ◆ Native to Central America.

9 FIREBUSH *Hamelia patens*

- ◆ A tea made from the leaves kills parasites.
- ◆ It has an edible fruit.
- ◆ Its leaves are also used to relieve dysentery, rheumatism, and scurvy.
- ◆ Native to tropical Americas.

10 BUTTERFLY LILY *Hedychium coronarium*

- ◆ This plant is used to relieve chest and arm pains.
- ◆ The leaves are used in a tea that relieves belly aches.
- ◆ Native to tropical Asia.

11 DUMB CANE *Dieffenbachia seguine*

- ◆ Its poisonous leaves are used by native people to stun or kill fish.
- ◆ The juice from its crushed leaves is used to remove parasites.
- ◆ Native to tropical Americas.

12 VANILLA *Vanilla planifolia*

- ◆ This plant is grown in some regions for its pleasant odor.
- ◆ Used mainly to make perfumes and spices.
- ◆ Native to tropical Americas.

13 PINEAPPLE *Ananas comosus*

- ◆ Known to the natives as "chi-na."
- ◆ Used by native people to induce abortion in early pregnancy.
- ◆ It is believed to combat intestinal gas.
- ◆ Native to tropical Americas.

14 CUSTARD APPLE *Annona cherimolla*

- ◆ Used for headaches, stomach ailments, and parasite removal.
- ◆ It is an edible fruit.
- ◆ Native to the northern Andes.

15 BIRD'S NEST *Aurthurium crassinervium*

- ◆ Used by native people as an ear wash for fungal infections.
- ◆ The powdered root is used for insect bites and sores.
- ◆ Native from Mexico to Venezuela.

16 PAPAYA *Carica papaya*

- ◆ Used as an edible fruit and juice.
- ◆ The leaves and green fruit are used to make meat tenderizer.
- ◆ Used by native people to treat worms.
- ◆ Native to tropical America.

17 CINNAMON *Cinnamomum zeylanicum*

- ◆ Used for indigestion, sluggishness, and diarrhea.
- ◆ Breathing its fumes relieves coughs.
- ◆ Native to India and Sri Lanka.

18 TROPICAL ALMOND *Terminalia catappa*

- ◆ The bark is used to treat fevers and stomach ailments.
- ◆ A tea is made from the leaves to treat liver problems.
- ◆ The fruit's kernel is edible.
- ◆ Native to Malay Peninsula.

19 AFRICAN OIL PALM *Elaeis guineensis*

- ◆ This plant is a source of oil for cooking and other products such as soap.
- ◆ It is a source of Vitamin A and E.
- ◆ Native to Africa.

20 LANCEPOD *Lonchocarpus violaceus*

- ◆ This plant has many medicinal uses and is a primary source of poison insecticides.
- ◆ Native to the West Indies and tropical Americas.

21 PIMENTO *Pimenta dioica*

- ◆ Also known as "allspice" it is the only major spice grown totally in the western hemisphere.
- ◆ It is used to treat fungal infections.
- ◆ Native to Central America.

22 MANGO *Mangifera indica*

- ◆ A tea from the leaves is used by native people for birth control.
- ◆ The fruit is edible.
- ◆ Parts of the plant are used for treating wounds.
- ◆ Native to Burma, it is now widely distributed.

FEATURE

Sprouting Young Scientists in Area Schools

Preschool Program Creates a New Level of Science Education For Area Students

By Hannah Morris, Academic Programs Coordinator



When is the last time you dug in the dirt, inspected an insect or dissected a seed? These types of hands-on, investigative activities come naturally to young children. Early learners – ages 3-5 – have an innate sense of wonder and curiosity about nature that helps them to engage with and discover the world around them. Sprouting Young Scientists is a brand new program created by Holden Forests & Gardens that is specifically designed to foster that connection to nature by educating preschool students on plant science topics in their classrooms.

Sprouting Young Scientists, or SPYS for short, is a multi-visit program, meaning an instructor from HF&G visits the same classroom of students up to four times a year. Programs are delivered in the fall, winter and spring with an optional summer session available. Each 45-minute class is seasonally themed with a focus on plant science: Changing in the Fall, Resting in the Winter, Sprouting in the Spring and Growing in the Summer.

In order to help build a strong foundation for science learning, the SPYS curriculum is deeply rooted in literacy concepts. Each session features a fiction and a non-fiction book that relates to the seasonal topic. The books highlight a special character, Sammy the Scientist. Sammy is a nature-loving squirrel who joins the HF&G instructor in stuffed animal form and “comes alive” to help facilitate the day’s activities.

Each session is structured in the same way. The program begins with circle time. The class sings Sammy’s Hello Song, followed by a reading of the fictional story book for that

season. Then, students break out in to three groups to participate in centers activities. One center is led by the HF&G instructor, one by the classroom teacher and one by a classroom aide or parent helper. The group led by the classroom teacher features reading and engaging with the non-fiction book. Students follow along with the book

is sensory and largely self-guided by the students utilizing sorting, matching and/or creative skills.

Studies have shown that students who are exposed to literature from an early age are more likely to do well in all facets of formal education, including science. Reading to children increases their ability to grasp



and complete a hands-on activity while the teacher facilitates. The group led by the HF&G instructor is heavily science-based and connected back to the fiction book read during story time. The third group

abstract concepts, apply logic and recognize cause and effect. Success in the 21st century requires adults to have a level three literacy skills at minimum. Level three skills include reading a bus schedule and writing a simple letter. According to the CWRU Literacy

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Cooperative findings, nearly 44 percent of Cuyahoga County residents ages sixteen and older have level one and level two literacy skills. In Cleveland, 65 percent of the population has level one or level two skills, and in East Cleveland, it is nearly 80 percent. Additionally, though they may be innately curious, young children are sometimes hesitant to engage with nature due to lack of experience. The relatable stories featured in the SPYS program, along with Sammy the Scientist Squirrel, help students to feel

comfortable with new science topics and allow them to ease in to a new experience without anxiety.

At the end of each session, students are invited back to circle time, and every child is gifted a copy of the non-fiction book that is featured that season. The book has a small pouch adhered to the back, which contains a special science lesson for them to carry out at home. A hard-cover copy of both the fiction and non-fiction books are also left in the classroom, along with post-visit lesson plans

for the teacher to use as follow up to the visit.

By the end of the four SPYS sessions, students will have improved their interest and ability in both literacy and plant science, further developed their critical thinking skills and deepened their connections to the natural world. For more information on participating in this program, please call Sharon Graper, Director of Academic Programs, at 440.602.3843.

RESEARCH EXPERIENCE FOR TEACHERS

in Polymer Engineering



The University of Akron
College of Polymer Science
and Polymer Engineering

PROGRAM OVERVIEW

- 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

PROGRAM OBJECTIVES

- To bring ten high school science teachers to the University of Akron each summer for an eight week research experience program focused on polymer engineering to increase their knowledge of engineering content and practices and enable them to effectively disseminate this knowledge in their classroom
- Support teachers to translate this research experience into lesson plans aligned with state and national standards that provide new inquiry based learning opportunities in engineering
- Disseminate the lesson plans and results of this research for broad impact both locally and nationally through web and journal publication, workshops, outreach events, and national conference symposia
- Build long-lasting partnerships between the K-12 STEM community, industry, and the University of Akron to improve the overall quality of STEM education in the region



Email questions to: polymerret@uakron.edu

Website: uakron.edu/cpspe/agpa-k12outreach/research-experience-for-teachers

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



The Akron Global Polymer Academy provides opportunities for teachers and students of all ages to experience the exciting world of polymers through a variety of offerings, including: in-school visits featuring engaging hands-on demonstrations, polymer family science nights, field trips to our exciting research college, and many polymer-related classroom resources available through our educational website.



The University of Akron
College of Polymer Science
and Polymer Engineering

agpa.uakron.edu



Arts + Leisure

Over 5,000 dollars
in prizes were
awarded last year to
students and schools!

All you need is
some creativity and
a rubber band...

RUBBER BAND CONTEST

For Young Inventors * 2019 *

Check out contest lesson plans
and see how your classroom
can enter next year!

rubberbandcontest.org



This contest is hosted by the Akron Global Polymer Academy.
Visit: agpa.uakron.edu to explore the exciting world of polymers!



Science + Engineering

Cuyahoga County Solid Waste District

[Click here for a link to Recycling Container Grant.](#)

[Click here for their home page with lots of resources for recycling.](#)

