The Reflector



Editor Dr. Mary Ellen Durham



Summer 2024

2024 PDI Rocking Out the New Standards in an Everchanging World!!



The North Carolina Science Teachers Association will host its annual Professional Development Institute (PDI) on November 7-8, 2024, at the Benton Convention Center in Winston-Salem, NC.

Focusing on professional collaboration and learning, the 2024 PDI will feature keynote addresses by two nationally recognized science educators. Conference attendees will be able to participate in content-relevant concurrent sessions, the general meeting of the membership, the annual awards ceremony and reception, opportunities to win mini-grants and prizes, and other fun activities. An extensive exhibit hall will provide opportunities to explore cutting-edge educational resources. A pre-conference field trip to Pilot Mountain State Park is also planned.

Each 2024 PDI event is designed to expand your instructional skills, enhance your professional knowledge, and promote collaboration with other science educators. Form new professional relationships, interact with former colleagues, network with like-minded teachers and expand your instructional expertise at the 2024 PDI.

Remember, up to 1.2 CEU credits can be earned during the two-day conference. Register today.

NCSTA 2024 President's Message



While the summer sun shines, let's get ready to ignite a blazing fall semester! I am inviting you to attend the NCSTA annual PDI on November 7-8, 2024, at the Benton Convention Center in Winston-Salem, N.C.

This year's theme is "Rocking Out the New Standards in an Ever-Changing World!" Buckle up for electrifying sessions and workshops designed to help you conquer the latest science standards with confidence and creativity. Our strands include "As the world turns: bringing the spheres together," "Strategies for engaging learners to meet the new science standards," and "Meeting the needs of our diverse learners."

This PDI promises to be an exciting and engaging professional experience showcasing two renowned keynote speakers. The schedule is packed with high quality concurrent sessions. A wide range of vendors will be available in the exhibit hall demonstrating the latest instructional resources. And, as always PRIZES will be awarded throughout the conference! Come learn, network, and enjoy the 2024 NCSTA PDI!

Regards,

Tom Savage



Reception and Awards Ceremony



On Thursday evening, November 7, 2024, all PDI attendees are invited to the annual reception and awards ceremony. Visit with colleagues (old and new), enjoy heavy hors d'oeuvres and the cash bar, and celebrate the accomplishments of your fellow science teachers.

Statewide and district-level winning nominees will be recognized for their excellence in science education. The 2024 May Your Wish be Granted winners will be announced. Adding to the fun, multiple opportunities will be available for attendees to win valuable prizes and classroom resources.

Keynote Speakers: PDI 2024

NCSTA is pleased to announce that Dr. Carol O'Donnell and Dr. Nehemiah Mabry will deliver the keynote addresses at the 2024 PDI.



Carol O'Donnell is the director of the Smithsonian Science Education Center, which is dedicated to transforming K-12 Education through Science collaboration with communities across the globe.

O'Donnell is responsible for all operational activities and planning for the unit, including building awareness for preschool through 12th-grade science-education reform, conducting programs that support the professional growth of P–12 teachers and school leaders and overseeing all research and curricular-resource development, philanthropic development and administration. O'Donnell serves as the U.S. representative on the Global Council of the InterAcademy Partnership Science Education Programme, an appointment by the National Academies of Sciences, Engineering, and Medicine, and she serves on the UN Broadband Commission Working Group on School Connectivity: Hybrid Learning. O'Donnell also represents the Smithsonian on the Subcommittee on Federal Coordination in STEM Education, which advises and assists the Committee on STEM Education of the Office of Science and Technology Policy of the Executive Office of the President. Dr. O'Donnell will speak following the general session on November 7, 2024.

Dr. Nehemiah Mabry, P.E. (affectionately known as Dr. Nee) is an Engineer, Educator and Entrepreneur based in Raleigh, North Carolina. His technical



experience includes 15+ years as a NASA Researcher, Bridge Design Engineer, and Adjunct Professor. Dr. Mabry is also the CEO and Founder of STEMedia Incorporated, which he started as a graduate student in 2012. STEMedia is an edtech and digital media company that provides creative content and career development for the Science, Technology, Engineering, and Math (STEM) community. Since its inception, they have won international awards, engaged thousands through lectures and presentations, and partnered with several corporations, organizations and academic institutions in STEM outreach. Dr. Mabry will deliver his address on Friday morning, November 8,2024.

Win via the Spin-A-Wheel!



Opportunities to win outstanding instructional resources and valuable prizes through Spin-A-Wheel drawings will occur frequently throughout both days of the PDI. As attendees visit registration, the exhibit hall, and the general session they may collect valuable Spin-a-Wheel tickets. Stay on the alert for Spin-A-Wheel drawings. If you hold the ticket with the number that is called, you will instantly win the prize indicated on the Wheel!

PDI Concurrent Stands: Rocking out the New Standards in an Ever-changing World!!

Strand: As the world turns: bringing the spheres together

Educators will share groundbreaking lessons that rock the classroom. Participants will explore activities that help students connect Earth and Environmental Science to other disciplines including Chemistry, Physical Science, and Biology. Educators will demonstrate how to use scientific inquiry to model the effect of forces, structures, and processes on the lithosphere, hydrosphere, atmosphere, and biosphere while honing skills in collecting evidence, evaluating, and communicating the impact of human behaviors on Earth's resources.

Strand: Strategies for engaging learners to meet the new science standards

Educators will share inquiry-based lessons that align with the latest science standards. These lessons should cultivate reasoning and problemsolving abilities, allowing students to acquire hands-on experiences that make sense of phenomena in science. The curricular resource(s) should provide opportunities for students to engage in the science and engineering practices through:

· questioning.

developing and using models.

planning and carrying out investigations.

analyzing and interpreting data.

using mathematics and computational thinking.

constructing explanations.

• engaging in argument from evidence.

employing effective scientific communication skills.

Lessons surface a cross-cutting concept (CCC) to help students make sense of the phenomena or topic. Patterns; cause and effect; scale, proportion, and quantity; systems; energy and matter; or structure and function relationships may provide a framework for enduring understandings. The purpose of the strand is to share lessons that allow students to experience content by engaging in active science practices as outlined by the new standards, while using an accompanying sense-making lens (CCC).

Strand: Meeting the needs of our diverse learners

Educators contribute to an exploration of inclusive science education, where we aim to empower teachers with the culturally relevant pedagogical tools needed to create classrooms to ensure equitable access to high-quality science education for every learner. Participants will gain practical insights into creating inclusive science classrooms that address the unique needs of students including students with disabilities multilingual learners. Sessions will illustrate approaches to differentiate by process, product, or content in order to reach all learners.



Annual Membership Meeting

You are encouraged to attend the Annual Membership meeting on Thursday morning November 7, 2024. During this general session relevant NCSTA business issues will be discussed, updates on the Association's activities will be presented and PDI related announcements will be made. Highlighting the session will be a keynote address by Dr. Carol O'Donell.



Exhibit Hall



As you plan your PDI schedule be sure to reserve ample time to tour the exhibit hall which will be housed in the Salem Ballroom 2 of the Benton Convention Center. A wide range of vendors will be available to interact with PDI attendees as they showcase their science education resources. Take time to preview cutting-edge instructional media and technology; examine the latest science texts, classroom kits, manipulatives, lab-ware and instruments, specimens, and study guides; and learn about the different science related learning experiences for both teachers and students.





Every science teacher has a wish list. Each of us has imagined that perfect lesson, laboratory activity, or demonstration but did not have the appropriate instructional materials. Budgets are tight and resources are limited. However, at the 2024 PDI your wish list might be filled through the NCSTA "May Your Wish Be Granted" mini grant initiative.

Submit your wish list for a chance to receive up to \$200 worth of classroom materials. All wishes meeting the mini-grant proposal requirements will be considered. Selections will be based on: Feasibility (how likely will grant materials be used), Sustainability (will materials be used more than once), Value (how does grant request align to current science standards), and the number of students affected.

Although you are not required to select from our vender list, please consider the goods and services of our participating vendors when making your wish. This <u>vendor list</u> will be posted on the NCSTA website and updated frequently. When submitting your proposal don't forget to account for sales tax and shipping.

Attendance at the 2024 PDI is mandatory to receive a mini grant. For your proposal to be selected you must apply by October 7th, 2024, and your PDI registration MUST BE PAID by October 7, 2024. (A registration is not considered paid until we receive a check or credit card payment: if your school is using a PO, the PO must be paid by the October 7, 2024 payment deadline).

Remember all grant requests will be reviewed using the aforementioned criteria and will be in competition with all other 2024 PDI Grant a Wish proposals. For a chance to have the resources to provide that perfect learning experience, please complete this <u>form</u>, <u>download</u> and complete your list of wish items, and email list to Tom Savage <u>tomncsta@gmail.com</u>





Easy Classroom Modification

Submitted by: Kristen Holt



Currently, I teach all honors level sciences including Chemistry, Biology, and Earth Science at Jackson County Early College. This past year I benefited from the May Your Wish be Granted program funding opportunity. My classroom focuses on lots of opportunities for hands-on learning. Our students are in smaller classrooms without lab space and oftentimes we have to get creative to provide opportunities that are realistic and address curriculum. My request this past year was odd. I requested 4 sets of bed risers for my classroom. We have used them frequently this past year. Each set of bed risers came with two levels, meaning that I could use them each separately or together. This gave me the freedom to raise up to 8 different tables to standing height. This was hugely beneficial on days where we were working with microscopes, liquids in graduated cylinders, dissections, etc. The tables being at standing height allowed my high school students to stand more comfortably and work more accurately at stations. I even have students who use them to stand and take notes. This fix isn't permanent but allows me to transition tables from lab tables to standard sitting stations in the same class period if needed. This is very important for those of us with limited space and funding. Thank you for the opportunity to provide more accessible, engaging science with my classroom!

Lesson Development with Micro:bit

Submitted by Lara Cabaniss



I am a Cabarrus County Schools STEM coach (R. Brown McAllister STEM Elementary School and Northwest Cabarrus STEM Middle School). Last fall I received a Make-A-Wish Award and was able to purchase Micro:bits for my students. The Micro:bit is a pocket-sized computer that introduces you to how software and hardware work together. It has an LED light display, buttons, sensors and many input/output features that you can program and physically interact with. The board contains a microcontroller that can be coded to perform specific tasks.

I used these with students at the upper elementary and middle school level. We used Microsoft's Make Code Editor to make thermometers that we used during our weather unit. We frequently coded them to create random numbers that we used for math classes. Finally, we used them as a conductivity tester by coding them to display a heart when our test circuit was complete. There are many lessons and ideas on the Micro:bit website that are teacher and student friendly just waiting to be explored! Thank you NCSTA for providing this learning opportunity for many STEM students in Cabarrus County!

Fifth Grade Body System Activity

Submitted by: Danielle Ortiz

I am the 5th grade science teacher at Bethlehem Elementary School in Taylorsville, North Carolina. I wanted to give my students a memorable hands-on lesson to review body systems and their functions. With a 2023 Grant Me a Wish mini grant from NCSTA, I was able to purchase frogs for dissection in the spring of 2024 so that my 87 students would have this opportunity to learn about their own bodies by exploring and making comparisons to a frog's anatomy. The students all agreed that the experience was unforgettable, and they learned so much! A few even declared that they would someday become surgeons or veterinarians because they found it so interesting. Thank you NCSTA for giving us this opportunity!









MY WISH WAS GRANTED CONTINUED ...

Makey Makey Kits Make A Difference



Submitted by Aubrey DiOrio

I am the STEM teacher at Turner Creek Elementary School in Cary, N.C. Last year, I wished to make student projects more interactive. I requested 4 Makey-Makey kits from the NCSTA "2023 PDI May Your Wish Be Granted" grant. I was so excited to be awarded this grant and to get Makey-Makey into the hands of my students! They immediately expanded what was possible with the projects students in second grade were building to represent states of matter and what fourth graders were building to show learning about the American Revolution. Students in second and third grade used makerspace materials to create models of their favorite meals and use the Makey-Makey to record and code touch points to explain how the food represented the states of matter. My fourth graders built models of Patriots and Loyalists and used the Makey-Makey to record and code touch points for their model to share their point of view about the American Revolution. The Makey-Makey kids have so many possibilities! Thank you NCSTA!









New Science Standards

Multiple sessions focusing on the implementation of the new science standards will be presented at the 2024 PDI by North Carolina Department of Public Instruction representatives. Attendees are encouraged to receive the latest updates by attending these informative presentations.

Presidential Awards for Excellence in Mathematics and Science Teaching.

The Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) are the highest honors bestowed by the United States government specifically for K-12 science, technology, mathematics and engineering teaching. Established by Congress in 1983, the awards are given to teachers from each of the 50 states, the Department of Defense Education Activity Schools, the U.S. Jurisdictions of the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, Guam, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands. The President may recognize a total of 110 exemplary teachers each year. The PAEMST award program recognizes teachers with a deep content knowledge and ability to motivate and enable learners to be successful in science, technology, engineering or mathematics. Awardees reflect both instructional expertise and dedication to the teaching profession. Since 1983 more than 5,200 educators have been recognized through the PAEMS awards program.

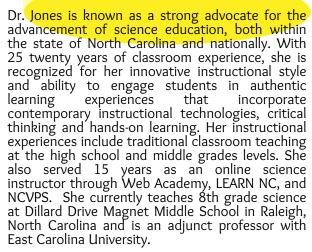
The 2024 North Carolina finalists for the PAEMST Award are: Courtney Eller, Jean Pelezo, and Rebecca Walker.

- Cortney Eller has 19 years of classroom experiences and earned a BS in Elementary Education, as well as an MA in Reading Education from Appalachian State University. She currently serves as the Elementary STEM Innovator at Mountain View Elementary (Ashe County Schools).
- Veteran teacher Jean Pelezo has been actively teaching for 35 years. She holds both a BA and MA in Education from the University of Texas El Paso. She is the Elementary STEM Laboratory Teacher at Vanstory Hills Elementary School (Cumberland County Schools).
- With 21 years of educational experience, Rebecca Walker is now a 5th grade science, social studies and ELA teacher in Cumberland County Schools. She holds a BA in Elementary Education from John Carroll University and a MA in Elementary Education form the University of Phoenix.

NCSTA congratulates these teachers upon receipt of this distinguished honor and will recognize their accomplishments during the 2024 PDI Awards ceremony.



This
Reflector
spotlight is
on Dr. Carrie
Jones. Dr. Jones
is a long-time NCSTA
member and has served
on the NCSTA Board as a
district director, treasurer,
president and currently holds
the position of NSTA Liaison.
She is also the Middle-Level Division
Director for the NSTA.



Throughout her career, this National Board-Certified teacher, has willingly advanced sound science instruction through her participation in a variety of professional development activities. For her contributions to the profession, Dr. Jones was named the 2024 Teacher of the Year by the American Association of Chemistry Teachers (AACT)

This annual AACT recognition goes to K-12 science educators who make outstanding contributions to the chemistry teaching profession based on the nominee's demonstration of exemplary pedagogy, career dedication, skills, and accomplishments.

NCSTA congratulates Dr. Joses

NCSTA congratulates Dr. Jones on the extraordinary achievement.



Share-a-Thon Opportunity



Do you have an exceptional, engaging lesson that you are willing to share but are a bit reluctant to present at a concurrent session? Do you have a unique instructional approach or brief demonstration that always seems to help your students comprehend that really difficult science concept? Do you have a special activity that promotes curiosity and critical thinking among your students?

If you answered yes to any of the preceding questions, NCSTA asks that you consider attending the 2024 PDI and sharing your best, innovative and hands-on science lesson or activity at one of the following Share-A-Thons: Elementary Science, Middle School Science, Physical Science/Physics/Chemistry, Biology/Life Science and Environmental/Earth Science. Share-a-thon activities should be engaging and aligned with the North Carolina Science Standards.

If you would like to participate in a Share-a-Thon please check the NCSTA <u>webpage</u> for more information and submit your <u>Share-a-</u> <u>Thon Information form.</u>

Participants in a Share-a Thon must <u>register</u> for the conference. All Share-Thon presenters will be given sufficient space in a large room to showcase their lesson. You will have opportunities to share copies and briefly describe your lesson or learning activity with PDI attendees as they rotate around the room.

Approved Share-a Thon presenters will be notified via email as to the status of their submission. The relevant content Share-a-Thon leader will also provide presenters instructions pertinent to the PDI. Each approved Share-A-Thon presenter will have his/her name included in the conference program. (PDI planners attempt to eliminate conflicts between Share-a-Thon sessions and concurrent sessions that cover the same topics).

Reality Check



NCSTA is committed to supporting future and novice science educators. The Association realizes that our preservice and beginning teachers face multiple challenges as they begin their classroom careers and that one effective way to assist them is to provide opportunities for young teachers to interact and learn from accomplished science educators. In addition to offering a special PDI registration rate for students, NCSTA will host Reality Check, a pizza party and informal networking session, exclusively for undergraduate students majoring in education, pre-service educators, and student teachers and their advisors on the first day of the conference. During the pizza party, veteran classroom teachers and NCSTA Board members will address questions, share classroom strategies, and make recommendations on how to effectively engage in a wide range of teaching/learning activities. University advisors and cooperating teachers are asked to encourage and facilitate our emerging science educators' PDI attendance and participation in Reality Check.

NCSTA Grants

NCSTA members who are taking study classes, attending conferences, or participating in workshops are eligible for a Study Grant. If selected, NCSTA will pay up to one half of your expenses, not to exceed the amount budgeted by the NCSTA board. (Graduate courses for the purpose of obtaining a degree are not eligible). To receive approval of the grant request, it must be submitted before your scheduled study. If approved, a nontransferable check will be made only to the grant winner(s) upon receipt of items listed in the agreement. If awarded the grant, you must submit a two-page summary about the study in an article in The Reflector and a presentation at the PDI conference. Applicant must be a NCSTA member for one year or more immediately prior to applying and has not received this grant within the prior three years.

NCSTA members may also apply for an Innovative Curriculum Grant which provides funding for supplies, materials, equipment, printing, travel and other expenses related to an innovative curriculum project involving students in a unique way. (These grants are not intended for student travel, field trips or the personal gain of the project Director). A committee will select recipients based on: innovativeness, establishment of need, realistic plan of action, ability to replicate, and the number of persons benefited. If awarded the grant, you must submit a two-page summary of the project and an article in The Reflector and a presentation at the PDI conference. One must be a NCSTA member for one year or more and have not received this grant within the prior three years. Grants up to \$1,000 will be awarded.

The fall deadline for submission of NCSTA grants is September 1, 2024. Application forms for these grants are available at online <u>Study Grant Form</u> and <u>Innovative Curriculum Support Grant</u> form. Please allw 4 to 6 weeks for grant decisions.

Sara Laws: 2023 NCSTA Study Grant Winner

An effective science teacher possesses more than a strong content knowledge. Exemplary instruction requires that the educator stay abreast of contemporary scientific discoveries and instructional resources, convey information to the students in a meaningful manner, implement classroom strategies that engage the learners and seek ways to collaborate and share best practices with other professionals. Effective science teachers are lifelong learners. Sarah Laws, a 2023 NCSTA Study Grant Winner is such a teacher.

Ms. Laws is in her sixth year as an earth and environmental science teacher at Mountain Heritage High School in Burnsville, North Carolina and has been an active member of NCSTA for four years. Firmly believing that students learn science by doing science, her lessons are filled with opportunities for students to explore, experiment, question, discuss, and engage in critical thinking. She was recognized as the Yancy County Schools' 2021 Teacher of the Year for her instructional expertise and has been honored with the North Carolina Museum of Natural Science Educator of Excellence award. She is a GoGlobal Educator Ambassador to Australia and is actively involved at her school, serving as the Interact Club Advisor, Beginning Teacher Mentor, Homecoming Court Advisor, and Prom Committee Advisor. She holds a Bachelors in Biology with 6-12 Science Licensure from UNC-Asheville and a Masters in Biology from Clemson University.

NCSTA Study Grant Benefits



summitted by Sarah Laws

Receiving a NCSTA study grant provided me with the platform to showcase effective teaching practices, expand my professional network, cultivate meaningful relationships, and access resources that continue to elevate my teaching of the sciences. With the grant's support I not only was able to attend the two-day conference but was able to present handson labs for every unit aligned with the North Carolina Earth Science standards.

The NCSTA conference allows participants to with educators from backgrounds and regions. The connections that I formed there have continued beyond the PDI, evolving into professional relationships that support ongoing collaboration and idea exchange. For instance, while picking up freebies at the exhibit hall, I learned about the Kenan Fellowship. I am now currently participating in this industry immersion fellowship for K-12 educators, which I otherwise may never have heard about. In summary, the NCSTA study grant was instrumental in advancing my professional growth. Crafting hands-on activities that directly tie into curriculum standards has allowed me to engage deeply with the material and fostered a more interactive learning environment for my students. Through attending my presentation at the PDI, I hope fellow educators left feeling the same way.



Wednesday 11/4/2024 5:00 PM to 8:30 PM

Join the Schools in Parks team for a science enrichment field trip to Pilot Mountain State Park. Transportation will be provided from the NCSTA conference, meeting at the lobby of the Winston-Salem Marriott downtown/convention center. Enjoy the sunset (6:26 PM) from the overlook atop Pilot Mountain. See the new Visitor Center featuring natural science exhibits. A catered dinner and talk with park rangers about the science of protecting the natural resources including monitoring migrating hawks and setting prescribed fires.

Meet partners from UNC-Institute for the Environment, the Office of Environmental Education, and North Carolina State Parks. Network with fellow science educators in a state park, after hours.

Maximum: 20 participants

Information on how to register and field trip cost will be provided soon via email and on the NCSTA website.

Schedule

5:00 PM

Meet at the Winston-Salem Marriott-downtown lobby for Van Transportation

5:45 PM

Guided Hike on Pilot Knob Trail (1-m optional) or hang out at the Overlook

6:25 PM

Sunset, then vans Depart the Summit for Dinner in Visitor Center

7:45 PM

Vans Depart the Park to Return to Winston-Salem

8:30 PM

Arrive back at Marriott Downtown

note: catered meal includes vegan and gluten free options

Registration for 2024 DPI

Pre-Registration Fees
Member Fee
\$ 180
Non-Member Fee
\$ 230
Retired Member Fee
\$ 40
Retired Non-Member Fee
\$ 60
Student Member Fee
\$ 20
Student Non-Member Fee
\$ 40

On-Site Registration Fees

Member Fee \$ 200 Non-Member Fee \$ 250 Retired Member Fee \$ 45 Retired Non-Member Fee \$ 65 Student Member Fee \$ 25 Student Non-Member Fee \$ 45

Pre-Registration Deadline - Checks 10/25/2024 Pre-Registration Deadline - Credit Cards 11/3/2024 On-Site Registration 11/7/2024 - 11/8/2024

If your school is issuing a Purchase Order, select the 'Payment by Check' option when registering.

No refunds after 10/9/2024. Your registration will be refunded less a \$15 processing fee. No membership payments will be refunded

Click <u>Registration</u> to register online.

Prepare your 2023 PDI Schedule

NCSTA will use the conference APP SCHED. We encourage you to use it for the latest updates to our PDI sessions and activities. Information on how to access SCHED is available on the NCSTA website.

Attendees: for more information on how to use SCHED: https://sched.com/support/section/guide-

https://sched.com/support/section/guide-for-attendees/

Presenters - for more information on how to use SCHED:

https://sched.com/support/section/speakertools/

Hotel Information PDI 2024

Hotel Location: Marriott Winston-Salem 425 Cherry Street Winston-Salem, NC 27101



Conference Rate:165 + tax Single/Double Occupancy

Reservations:

Deadline Oct. 11, 2024 - online reservations If reserving by telephone, please request NCSTA block room.



Parking Fee Reimbursement for 2024 DPI

NCSTA will pay up to \$15 (total, not per day) toward parking for registered attendees of the PDI (no vendors please), limited to one parking receipt per day.

Please download and fill out the <u>Parking Reimbursement Form</u>, put your name on your parking receipt(s), and either mail or email the form and receipts to us before Dec. 1, 2024. Instructions are on the form. You will receive a check in the mail after the conference.

NCSTA will be rocking in Winston-Salem November 7-8, 2024 See you There!!!