

The Reflector



Winter 2023



November 2022 PDI

Last fall NCSTA hosted its annual PDI, **Science and the Natural World, Celebrating North Carolina's Resilient Educators**. The Benton Center in Winston Salem was bustling as science educators from across the state attended numerous concurrent sessions, explored over 50 exhibitor booths and celebrated their peers at the annual awards ceremony.

North Carolina's own Luke Dollar (National Geographic Explorer and wildlife biologist) gave the keynote address which focused on his field research in Madagascar and work with education, conservation, and development programs.

Throughout the conference attendees were able to network, collaborate, and learn about effective classroom practices and WIN raffle gifts and Spin a Wheel prizes.



NCSTA 2023 President



Cliff Hudson is the 2023 NCSTA President. Committed to the association, he has served on the board as a District 1 Director and President Elect. He is a National Geographic Certified Educator and holds a North Carolina Environmental certification. Cliff currently serves as the K-12 Science/STEM coordinator for Martin County Schools. He is also a North Carolina Space Education Ambassador and a NASA JPL Solar System Ambassador.

Cliff states that his membership in NCSTA has provided strong support for his career as a science educator, and as the 2023 president he seeks to provide enhanced outreach and professional service to North Carolina Science Teachers.

2022 Life Time Achievement



In recognition of his leadership, dedication to science education, and contributions to the profession, Manley Midgett received NCSTA's prestigious Life-Time Achievement Award. Manley's multi-faceted career includes science teaching at the secondary and university level; instruction in teacher preparatory programs; teaching professional workshops for science educators; leadership in state and national Science Fairs and Science Olympiads; leadership with the NC Teacher Academy, North Carolina Science Leadership Association, National Science Teacher Association and NCSTA.

2022 NCSTA Awardees

Outstanding Student Teacher in Science

- Casey Corpening; the Carol Hampton Student Teacher Middle Grade

District Outstanding Science Teacher, Elementary School

- Trevor Such
- Sherry Parrish
- Christopher Stinson
- Jordan Boone
- Nicole Riddle

District Outstanding Science Teacher, Middle School

- Stevon Creque
- David Rattè
- Christopher J Barth
- Laurel Hawkins

District Outstanding Science Teacher, High School

- David Huffman
- Monica Strada
- Shannon Shurko
- Emily Davidson

Distinguished Service Awards

- Reba Johnson, the Jo Duckett Wallace Elementary School Award
- Michael Lowder, the Don Bailey College/University Award
- Jennifer Redfearn, the Ann & Bill Palmer Administration/Supervision Award
- NASA and NC Space Grant, the Support of Outreach Science Education Award
- Dana Brown Haine, the Non-School Setting Award

Congratulations



2022

Vi Hunsucker Award



Michelle Benigno received the 2022 NCSTA Vi Hunsucker Award for her dedication to STEM education and her diligent work promoting science equity for students and teachers across the state. In addition to teaching 9-12 Science in Ashe County Schools, she has been an Assistant Curriculum Director for Madison County Schools and a Secondary Instructional Coach for Henderson County Schools. She currently serves as the Director of the Mountain Outreach Office of the Science House of NCSU. In this role she provides over 1,500 teacher services and 10,000 student experiences each year. A cheerleader for her fellow science educators, Michelle's instructional skills and leadership foster exemplary science instruction throughout the state.

Do you know a terrific science educator? If so consider nominating her/him for a NCSTA award. Check the NCSTA website for more information Awards - NCSTA.

NCSTA's 2023 PDI

Putting It All Together and Moving Beyond – New Standards, New Ideas, New Directions

Presentation Strands:

1. Tools and Ideas for Embracing, Navigating and Implementing the New Standards

Breaking down and analyzing the standards. What do they mean for science teachers? Planning how to implement the standards. Examining the standards at various grade levels/spans.

2. Creative and Innovative Strategies for Elevating Teaching, Learning, Engagement and Relevance through Inquiry-Based Approaches

Empowering the learner and teacher to analyze data, communicate effectively, and determine supportable conclusions. Enhancing STEM lessons by fostering critical thinking skills through inquiry, case studies, and authentic data.

3. STEM Lessons and Ideas to Address Contemporary Current Events and Emerging Science Topics

Teachers are charged with preparing students for the future with the skills they need to apply and analyze hot button topics in the news: climate change, alternate energy sources, infectious disease, flooding, food sources, land usage, etc. They must also address emerging science such as coding, robotics, gaming, AI, and chaos theory.

November 2-3, 2023
Benton Convention Center
Winston Salem, North Carolina



District Directors for 2023

NCSTA District Directors are elected by the membership and serve as liaisons between the Association and you, the science teacher. Working with other board members, district directors develop and implement the association's outreach activities. Your district director can provide information regarding student competitions, resources, science-related events, as well as, NSTA sponsored grants, awards, and the annual Professional Development Institute (PDI). The 2023 District Directors are:

District 1	Jennifer Stalls
District 2	Michelle Hafey
District 3	Lottie Peppers
District 4	Kelly Ficklin
District 5	Brad Rhew
District 6	Carie Fugle
District 7	Lindsay Smith
District 8	Amanda Clapp

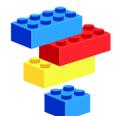


Spot Light on Districts 1, 3, and 5

District 1 - Gizmos training was offered to science teachers in the district. This computer-based program provides elementary, middle and secondary exploratory, interactive learning experiences in the biological, physical and earth sciences. Participants learned how to couple the digital programs with other instructional strategies or as stand-alone lessons. Training focused on using the programs to enhance student skills in questioning, data collection and critical thinking.

District 3 - This winter there are multiple STEM initiatives in the district. In addition to the February Science Olympiad, North Carolina State University hosted the Future City Competition for middle schoolers. This contest challenged teams to think about and plan cities of the future that address climate change issues. The Friday Institute has announced the Making Computer Science (CS) STICK: Systemic Change for Teachers. In partnership with Wake County Public Schools, the Institute will create and develop a community of elementary teachers to support ongoing integration of computer science concepts into the curriculum. Up to 60 elementary teachers will be recruited, trained, and supported in developing best practices and cross-curricular activities that meet ELA, Mathematics, Science and Computer Science Standards.

District 5 - STEM awareness is building in District 5. The Science Olympic competition, as well as The Engineering Festival are scheduled for February. Sponsored by Kaleideum North, the Engineering Festival offers a range of activities including paper building contests, drone demonstrations and a chance to "meet and talk" with engineers. The Find Your STEM Conference 2023 is scheduled for March. This conference, hosted by the Joint School of Nanoscience and Nanoengineering is a collaboration between Grimsley High School Girls in STEM, Dudley High School Society of Women Engineers Next, and the Greensboro Branch of the American Association of University Women and is designed to provide support, growth and advancement of girls and women in STEM careers. The North Carolina Science Teachers Association will have a presence at the North Carolina Association for Middle Level Education Conference in March. If attending, stop by the NCSTA exhibit.



Look UP!

Mark your calendars and look up. Several celestial events occur this winter and spring.

New Moons:

In the New Phase, the moon is located on the same side of the earth as the sun and is not visible in the night sky. Since there is no "moonlight" to interfere, these evenings provide the best time during each month to view star clusters, galaxies and other faint objects. New moons will occur February 20, March 21, April 20 and May 19.

Full Moons:

In the full phase, the moon is located on the opposite side of the Earth, therefore its face is fully illuminated. People have historically viewed full moons as significant. Since the time between one full moon and the next averages 29.5 days, man has often used the regular appearance of this phase as a reliable marker for the passage of time. Interestingly, numerous cultures have associated the appearance of a full moon to human behaviors even though there is no hard evidence to support these claims. Full moons have been linked to irrational or insane actions, thus the words lunatic and lunacy. They have also been associated with magic and paranormal events such as lycanthropy, the supernatural transformation of a person into a wolf or other animal. Countless populations have included full moons within their folk lore and legends, giving special names to full moons at particular times of the year. Full moons will appear:

March 7: This is often called the **worm moon**, as early Native Americans noted that often the March full moon occurred as the ground thawed and earthworms appeared following the cold winter season. It is also called the **sap moon** as it marks the time of year when the sap from maple trees can be harvested to make syrup.

April 6: The April full moon has several names from various Native American tribes. It is called the **pink moon** among eastern tribes as it marks the emergence of pink wild ground phlox which is one of the first spring flowers; **egg moon** by southern tribes as it occurs when many birds lay their eggs, and among coastal tribes it is called the **fish moon** as it coincided with the spawning of fish.

May 3: This full moon was called the **flower moon** by the plains Native Americans because it is seen at the time of year when flowers appeared in the grasslands. Early settlers to the Americas called it the **corn planting moon** as it was safe to start planting summer crops by the time it appeared.

Lyrids Meteor Shower: - April 16-25: The Lyrids meteor shower is produced by dust left behind by comet C/1861 G1 Thatcher. This comet was discovered in 1861 and tends to produce 20 to 25 meteors per hour at its peak. This year the shower will peak on April 22 to 23. These meteors often produce dust trails whose shine can last for several seconds. The meteors will most often radiate from the constellation Lyra. On the 22nd the sky should be dark enough to detect multiple meteors as a crescent moon will set early in the evening.

Eta Aquarids Meteor Shower- April 19-May 28: Most of this shower's activity will be visible from the Southern Hemisphere. However up to 30 meteors per hour are possible over the North Carolina sky during its peak (May 6-7). Resulting from dust particles left behind by Comet Halley, and the meteors radiate from the Aquarius constellation. There will a bright, nearly full moon, the evening of the 6th, so best viewing will be close to midnight and during the early morning hours of the 7th.

March 20: This is the **March** or **Vernal Equinox**. There will be almost equal amounts of day and night across the globe as the sun will shine directly on the equator. This marks the first day of spring for the Northern Hemisphere and the first day of fall for the Southern Hemisphere.

Mercury Elongations:

April 11: Mercury appears to the east at 19.5 degrees from the Sun, which is its greatest eastern elongation. (Elongation is the angle observed from Earth between the direction to the Sun and the direction to a planet.) This is the best evening to view Mercury as it will be at its highest point above the horizon and will appear low in the western sky shortly after sunset.

May 29: Mercury reaches its greatest western elongation of 24.9 degrees from the sun. It will be at its highest point above the horizon in the morning sky. It will be best viewed low in the eastern sky just before sunrise.



Teaching Tip: LUNAR PHASES

Students frequently hold misconceptions regarding celestial movement. The phases of the moon can be particularly confusing. This activity uses guided questions and a whole-body learning experience to simulate lunar phases.

Materials: Diagram of the lunar phases; 1 ½ "or 2" white Styrofoam balls (one per student); a very bright crook-neck clamp study lamp; one pencil per student.

1. Use guided questions to generate a student awareness of lunar phases.

- Have you ever looked at the moon at night? What does the moon look like? Does it always look the same? Are there clear nights when you can't see the moon at all?
- Once there is an agreement that the shape of the moon seems to differ over time, use a diagram of the lunar phases to illustrate the periodic changes in the moon's appearance. Also note that during the new moon phase it may not be seen but still exists.
- Have the students openly speculate and create explanations as to why the phases occur. (Many suggest that "the shadow of the earth crosses the face of moon incrementally producing partial then total covering of the moon's surface".
- Ask the students what causes an eclipse of the moon. (You may receive the same explanation for eclipses as lunar phases and a new moon). Challenge the use of both rationales. "If eclipses and new moons are the same event, we would rarely be excited over an eclipse. We usually view lunar eclipses as very special."

2. Invite the students to participate in a whole-body learning activity to illustrate the lunar phases.

- Give each student a Styrofoam ball and a pencil. Have the learners insert the pencil into the ball so it resembles a lollipop. Student then hold the ball by the pencil.
- In a dark area, position the study lamp so it is above the students' heads projecting light across the room.
- Inform the students that the lamp represents the sun, the ball the moon and their body is the earth.
- The students are to stand facing the light, holding the ball in their right hand. Each is to position the ball at arms' length to his/her right side, tilting it slightly away from his/her body. Without turning or moving their heads, the students move the ball slowly right to left across their bodies. As the ball is moved the students watch the light reflected from lamp "cross" the surface of the ball. It duplicates how the moving moon reflects sunlight which is seen as lunar phases.
- Have the students stop moving their balls at the new moon position. Note that no shadow is falling across it, but light is being reflected back toward the lamp (sun). Clarify that during a new moon reflected light is not directed toward earth.

3. Define and summarize.

- A lunar eclipse only occurs during a full moon. The earth moves in direct alignment between the sun and moon. The earth's shadow moves across the moon. Lunar eclipses occur about twice a year. The positioning of the sun, moon and earth when the alignment occurs determines where the eclipse can be seen on earth.
- A new moon occurs every month. The earth is not between the sun and moon. The angle of the moon and the angle of earth are not aligned, so the moon is not in a straight line with earth and sun. The new moon is not seen because light is reflected back to the sun and not toward the earth. It is not due to the earth's shadow crossing the moon's surface.

Important Dates

State Science Olympiad	April 21-22, 2023
Science and Engineering Fair	March 24-25, 2023
NC Student Academy of Sciences Competition	March 24, 2023
Environthon	April 28-29, 2023
NCSTA PDI	November 2-3, 2023

