

Professional Development Opportunities

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Get ready for spring and summer with these great workshops and trainings. Below are links to some upcoming programs all over the state. For a more complete list visit the [NCSTA Professional Development Calendar](#).

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Grants

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If you know a program that should be included in the next issue of the Science Reflector, [email the editor](#).

Teacher Renewal Seminars: The NCCAT Experience

Join us for a North Carolina Center for the Advancement of Teaching (NCCAT) seminar. Teachers of all grade levels and subjects who have been employed full-time in North Carolina public schools for at least three years may apply. Seminar materials, lodging, meals, substitute teacher pay, and most travel expenses are covered **at no cost to the participating teacher or their school**. All seminars are aligned with the NC Standard Course of Study, are multi-disciplinary, and are based on experiential learning principles.



To register call NCCAT Teacher Services at 1-800-922-0482 or email registrar@nccat.org submitting your name, home telephone number, social security number, and seminar choice. Abridged descriptions follow; however, full descriptions of all professional development offerings are available on the NCCAT web page, www.nccat.org.

11215 • NASCAR: Science on the Race Track
TBD *(see below): Randleman

Originating as the back-roads mode of transport for moonshine, motor sports in the modern age have created a fast-moving career path for specialists not only in automotive design and performance, but also in technology, economics, marketing, public relations, art, finance, accounting, and tourism. Visit NASCAR team shops and motor speedways to meet those who have helped turn a regional sport into a multimilliondollar national industry. Explore the ways in which math and physics work together on the speedway. You will learn ways to connect motor sports to learning in your classroom while immersing yourself in the world of speed. *Due to NASCAR

schedules, the seminar will be held sometime between January 19 and February 6.

11325 • Starry, Starry Night

February 22–26: Ocracoke

Look up into the night sky. Feel the wonder, fascination, and awe that our ancestors felt as they were guided by star lore in their planting, building, navigating, and migrations. Learn about the celestial sphere, how the sky seems to move and change, how to identify many bright stars and constellations, why we have seasons, and what causes the cycles of the moons and planets. Explore phenomena such as eclipses, meteors, comets, and satellites. Participate in hands-on activities that awaken the wonderment and mystery of the cosmos. In collaboration with faculty from UNC-Chapel Hill's Morehead Planetarium and Science Center, learn practical methods of stargazing with the naked eye. Master the basics of how to choose and use a telescope to view the evening sky. Discover new and exciting resources to stimulate scientific inquiry in your students. Come experience the stars and see why the sky's the limit.

11390 • Sea Level Rise: The Impact of Climate Change on the Outer Banks

March 16–20: Ocracoke

Few issues today are as controversial and timely as the impact of human activity on climate change. Join us on North Carolina's coast as we study the complex forces at work causing global climate change. Compare current weather patterns with historical data to assess trends of global warming and cooling. How do human consumption of fossil fuels and the production of greenhouse gases affect climate change? How does climate change impact sea level rise? Explore the beaches and marshes along the Outer Banks for a firsthand look at the effect of coastal storms, which have increased in frequency and intensity, to witness what our state stands to lose. Learn ways we can help our students understand and respond to this complex issue in a responsible and powerful manner as we strive to become better stewards of our world.

11395 • Wiki, Wacky, What? Web 2.0 Applications for 21st Century Schools

March 16–20: Cullowhee

What in the world is a wiki? Some people suggest that it means, "What I Know Is." Wikis are collections of server software that allow users to create and edit web page content using any web browser. Such sites promote interaction, collaboration, social networking, and have cross-platform capabilities. Learn about wiktionaries, wikinews, wikisources, wikiquotes, and how wikis can be useful teaching tools for motivating student learning. Enhance your technology competencies as we investigate some of the most popular Web 2.0 tools. Other Web 2.0 tools we will explore may include JavaScript, online file sharing, blogging, and folksonomy. Have no fear—this seminar is designed for teachers with all levels of computer experience.

11455 • The Ecology of Barrier Islands

April 5–9: Ocracoke

Explore the world of the barrier islands. Barrier islands are typically characterized by low sandy islands that are easily affected by wind, tides, and currents and protect the mainland from these forces. What makes North Carolina's barrier islands unique is their distance from the mainland and their close proximity to the continental shelf and the Gulf Stream. Learn about the formation and stability of these landforms, the seasonal effects of storms, and how these islands change over time. How do these islands reflect a world of dynamic equilibrium, a world of constancy and change? Compare and contrast the land of the sound with the land of the sea. How do these two regions of the island differ? Investigate the key plant and animal species associated with these two distinct regions.

11470 • Crime Scene Investigator: The New Sherlock Holmes

April 13–17: Cullowhee

Investigations require a keen sense of observation, extensive use of the scientific method, and physical and biological expertise. The field is often peopled with multiple investigators, all with their own areas of skill and knowledge. Become detectives as we put on the hat of the forensic scientist and determine the facts in a simulated crime scene. Discover how to objectively apply the techniques of physical and natural sciences in examining forensic evidence. Stalk the trail with a famous tracker. Analyze the smallest traces of human evidence using DNA profiling as we become molecular scientists aboard the Destiny traveling science laboratory. Work with a world famous forensic anthropologist who will help us as we "leave no bone unturned."

11480 • Wings Over Sound, Sand, and Sea

April 13–17: Ocracoke

The coast of North Carolina is one of the richest and most important areas on the planet for tens of millions of

migrating and nesting birds. With a location midway along the Atlantic flyway, the Outer Banks, Pamlico Sound, and the adjacent coastal plain play host to more than 400 species of birds who take advantage of the region's astonishing variety of ecosystems. What role does the presence of the Gulf Stream play in providing resources for pelagic birds? How do our national seashores provide an important source of protection during migration? Where do these animals, some of which are threatened or endangered species, start their journey and where are they headed? How are they able to navigate across thousands of miles of unknown territory? Examine the various evolutionary adaptations that have helped birds flourish in their environment. Study the role that marine animals play in determining when migration occurs. Learn how biologists monitor bird populations and track their movements.

11510 • Appalachian Spring

April 20–24: Cullowhee

Springtime in the mountains of the Southern Appalachians is a time of wonder and promise. All the subjects of human inquiry expand in the sun of the warming slopes. The botany of the wildflowers, blooming plants, and budding trees sings of the complexity and beauty of the ecosystem. The biological diversity of the region parallels the geology of the sheer granite rock faces, the hydrology of the streams that etch the landscape, and the sociology of the people who have inhabited this land for millennia. Spring into the stories of the region's most ancient human settlers and more recent settlers, like the Scots-Irish, and other immigrant groups. Examine the ways that people have attempted to preserve this fragile environment, including the creation of the Great Smoky Mountains National Park. The expanded ecological awareness and appreciation for experiential learning we gain can be shared with students of all ages. This seminar requires a moderate level of fitness and will include some gentle hikes.

11570 • You Go, Girl! Encouraging Girls in Math, Science, and Technology

May 4–8: Cullowhee

Girls often excel in math and science in elementary school, but in middle school many begin to fall behind. This lag is not caused by inability; rather, it is caused by a cultural message that math, science, and technology are masculine and nerdy. Many outstanding students get turned off and never discover that they could excel in fields related to math and science. What do girls need in order to reclaim their excitement and involvement in math and science? How can hands-on experiences open the doors to locked rooms of potential? Discover projects that challenge your students' intellect and creativity. Discuss how field trips and successful female role models can inspire your students. Investigate how much fun inquiry and discovery can be. Develop classrooms where students can expand their vision of the possible.

How do I apply?

Teachers of all grade levels and subjects who have been employed full-time in North Carolina public schools for at least three years may choose a seminar. There is no cost to the teacher. Call NCCAT Teacher Services at 1-800-922-0482 or email registrar@nccat.org submitting your name, home telephone number, social security number, and seminar choice. Or visit the NCCAT Website at www.nccat.org to download an application. If you have any questions about particular seminars, please feel free to contact Renée Coward, 2005 NCSTA President and NCCAT representative.

The Science House

Optics and Photonics Teacher Workshop



The Science House of NC State University and National Science Foundation Photonics Leaders program is offering a hands-on workshop for teachers of science in grades 6 thru 12 on March 12-14, 2008 at The Science House in Raleigh. This hands-on workshop is designed to expose educators to the wonder of photonics; and emerging science, technology, engineering and mathematics (STEM) careers during a 3 day face-to-face hands-on experience and a 2 days of virtual learning following-up sessions. Learn more and register at <http://www.science-house.org/workshops/photonics.html>

Physics and Chemistry Modeling Workshop

Join The Science House for an intense 2-week summer workshop on modeling, a structured inquiry approach to science teaching that incorporates computer technology and insights from physics education research. Workshops will be offered in both physics (mechanics) and chemistry on July 7 - 24, 2009 at The Science House in Raleigh. Stipends and other support are offered. Learn more and register at <http://www.science-house.org/teacher/modeling/>

North Carolina Teacher Academy

The North Carolina Teacher Academy has begun to offer two excellent professional development opportunities for elementary teachers. The courses being offered are "Physical Science Is Elementary" and "Getting Down to Earth Science". Both will be offered in one-week formats this summer (2009) at different college locations across the state. In each case, schools will be asked to send teams of teachers representing all of the elementary grades at the school. Lodging and meals are provided at no costs to the participants at each site. In addition, each participant will receive a \$400 stipend, an activity manual and a grade-level kit of science materials.

The important thing to note is that teachers at each grade will receive a wealth of activities that have been designed specifically for one grade. This means that kindergarten teachers will learn about physical or earth science for kindergarten students where as teachers at other grades will have their own activities. This is not a "one size fits all" approach. Participants will also learn and practice science note-taking activities that they can use with their students.

The specifics of these summer opportunities and applications will be available on-line at www.teacheracademy.org beginning in February. For questions, please contact Manley Midgett at the North Carolina Teacher Academy at manley.midgett@teacheracademy.org or by calling him at 800-801-7983.

Project Learning Tree

Project Learning Tree (PLT) workshops will introduce you to exciting, hands-on, multidisciplinary activities that cover a broad range of topics in our natural and built environments. Attendees at PLT workshops can obtain CEU renewal credits, and the PreK-8 curriculum is correlated to the NC Standard Course of Study in the areas of science, math, language arts, and social studies. Additionally, PLT is required for the NC EE Certification program. Unless stated, workshops and materials (including activity guides) are provided free of charge, but participants must pre-register. To pre-register for any of the workshops below, please contact the person listed directly. More information about individual workshops can be found on the NC PLT web site www.ces.ncsu.edu/plt.



February 16 & 17, 2009, 9am - 4pm & 9am - 2pm
Where is "away"? A municipal solid waste workshop featuring PLT!
PreK-12 Workshop, Elizabeth City, NC
To Register: 919-715-6794, 919-515-5518

Everyone knows our waste goes "away" when we dispose or recycle it. But where is "away"? This workshop will give you a hands-on look at "away". Participants will receive multiple lessons about solid waste and recycling, hear from experts in the field, and walk away with recycling freebies you can use with your school or organization. Workshop qualifies for Criteria I of EE Certification and CEU renewal credits are available. Workshop, lunch, tour, and additional materials are provided free of charge. This workshop is open to anyone interested in learning and teaching about this topic, but teachers and staff associated with school districts (including private, charter, and magnet school) will receive a \$75 stipend.

March 16, 2009, 2pm - 8pm
PreK-12 Workshop
Kathleen Clay Edwards Family Branch Library, Greensboro, NC

To Register: Melanie Buckingham melanie.buckingham@greensboro-nc.gov 336-373-2923
This workshop qualifies for Criteria I of EE Certification and CEU renewal credits are available.

March 31, 2009, 9am - 4pm
PreK-12 Workshop, Fire Focus
Jordan Lake Educational State Forest, Chapel Hill, NC
To Register: Jordan Lake ESF Rangers jordanlakeesf_dfr@ncmail.net 919-542-1154
This workshop qualifies for Criteria I of EE Certification and CEU renewal credits are available.

Kenan Fellowship

The nomination and application period for Kenan Fellowships has begun. Nomination and application forms are accessible on our website through the Apply/Nominate link. Complete descriptions of all Fellowships are now posted.

If you are a community leader, parent, corporate/business leader, assistant principal, department chair or someone else familiar with the professional career of an outstanding teacher, nominate them today for this distinguished program.

If you are a teacher and wish to apply, ask an administrator or colleague to nominate you. You may begin an application before being nominated, but the application is not complete until a nomination is received. You will need email contact information for two people (one must be your principal) who will submit online letters of recommendation.

Applications are due January 30, 2009. http://www.ncsu.edu/kenanfellows/?q=2011_application

NASA's Digital Learning Network

presents a series of videoconferences to assist educators in staying current on NASA education resources and related products. During each event, product producers, authors and experts will demonstrate their materials designed to optimize awareness and understanding of science concepts. During the videoconferences, participants will be able to submit questions to the presenter that will be addressed during the presentation.

STS-119: Jan. 28, 2009, 4-5 p.m. EST

Space shuttle Discovery is set to launch in mid-February 2009, for the STS-119 mission. Learn how spacesuits have changed since the Mercury program. As technology has developed over time, so has the sophistication of these garments used to protect astronauts on spacewalks. Join NASA's Johnson Space Center to learn about the history of the spacesuit, its transformations and the resources available to educate students about this important piece of astronaut couture!

Chemistry: What Is Your Cosmic Connection to the Elements?: Feb. 25, 2009, 4-5 p.m. EST

The elements that make up life itself reflect events that take place in the universe. Humankind's very existence is linked to these elements and their cosmic origin. Join in for discussions of the big bang theory, stars, supernovae, cosmic rays and other topics as participants learn more about the cosmic origin of the elements.

Kepler Mission: March 25, 2009, 4-5 p.m. EST

The Kepler mission will seek evidence for Earth-size planets in orbit around sun-like stars. For the first time NASA will be able to search the galaxy for Earth-size or smaller planets. With this cutting-edge capability, Kepler may help to answer one of the most enduring questions humans have asked throughout history: Are there others like us in the universe?

Meteorology: An Educators Resource Guide for Inquiry-Based Learning: April 29, 2009, 4-5 p.m. EST

Meteorology is one of the oldest observational sciences in human history and perhaps the most relevant to a broad segment of society. Learn how the first early meteorologists used this knowledge for their success and survival. This educator guide covers weather patterns, climate and measurement tools.

NASA Explores Virtual Worlds: May 27, 2009, 4-5 p.m. EST

Virtual immersive environments are increasing in popularity in modern America. Explore the virtual world that NASA education is building in Second Life and learn how to become an active citizen of this world.

For more information about these videoconferences and to sign up online, visit <http://dl.nasa.gov/dln/content/webcast/>. Questions about these events should be directed to Caryn Long at caryn.long@nasa.gov.

Pisgah Forest Institute

Distance Learning: Earth/Environmental Science for Middle and High School Educators



This on-line distance learning workshop will run for 8 weeks, February 21—April 20, 2009, and is designed for educators of grades 6-12. The workshop will focus on four general sections of earth and environmental science curriculum: geology, ecology, hydrology, and atmospheric conditions. Participants will be provided with background information, lessons, and activities in these areas. This workshop will start with an orientation at Brevard College with the Pisgah Forest Institute staff. This workshop is geared to participants that are unable to travel to our week-long summer workshops. Workshop participants are eligible to receive up to 4 Continuing Education Unit (CEU) credits based on 40 contact hours, as well as Criteria III credit in the North Carolina Environmental Educator's (NCEE) Certification Program. Three semester hours of undergraduate college credit is available through Brevard College.

Astronomy for Middle and High School Educators

Pisgah Forest Institute has partnered with the Pisgah Astronomical Research Institute (PARI) to present this workshop designed for 6-12 educators on March 7, 2009. Some of the topics covered will include: navigating the night sky, spectra of stars, and radio astronomy. Participants will also have a chance to learn how to operate one of PARI's radio telescopes remotely. Star-gazing will be included during this one day workshop. Since the workshop will run into the evening, housing will be available. Your \$50 workshop deposit can be applied to cover housing that evening if needed. Workshop participants are eligible to receive up to 1 Continuing Education Unit (CEU) credit based on 10 contact hours, as well as Criteria III credit in the North Carolina Environmental Educators (NCEE) certification program.

Earth/Environmental Science for Middle and High School Educators

This Pisgah Forest Institute, July 12—17, 2009, workshop provides science educators of grades 6-12 with classroom lessons, laboratory activities, and field experiences associated with earth and environmental topics. The workshop will focus on four general sections of earth and environmental science curriculum: geology, ecology, hydrology, and atmospheric conditions. The workshop will use the national forests of Western North Carolina as a classroom to teach participants about the unique organisms and ecosystems of the Southern Appalachian Mountains.

Workshop participants are eligible to receive up to 4 Continuing Education Unit (CEU) credits based on 40 contact hours, as well as Criteria I or II credit in the North Carolina Environmental Educators (NCEE) certification program. Three semester hours of undergraduate college credit is available through Brevard College. (A great way to receive college science credits for lateral entry teachers!!)

Earth/Environmental Science for Elementary School Educators

This Pisgah Forest Institute, July 19—24, 2009, workshop provides elementary educators with classroom lessons, laboratory activities, and field experiences that capitalize on the topics in the earth and environmental K-5 science curriculums. Teachers will be presented pertinent background information along with tangible methods to introduce these earth and environmental science concepts to K-5 students. Emphasis will be placed on using the environment around us to provide a living classroom to students. Some of the specific topics include: plants and animals, geology, water and air quality, and weather. Environmental issues will be integrated throughout the workshop. Workshop participants are eligible to receive up to 4 Continuing Education Unit (CEU) credits based on 40 contact hours, as well as Criteria I or II credit in the North Carolina Environmental Educators (NCEE) certification program. Three semester hours of undergraduate college credit is available through Brevard College. (A great way to receive college science credits for lateral entry teachers!!)

Magnificent Mushrooms

There is so much mystery and myth surrounding mushrooms that it is hard to separate fact from fiction. This Pisgah Forest Institute workshop, July 26—28, 2009, designed for K-12 educators, will focus on the basics of mushroom morphology and identification, ways to incorporate mushrooms into curriculum, and some of the uses and culture surrounding mushrooms. Workshop participants are eligible to receive up to 1.5 Continuing Education Unit (CEU) credits based on 15 contact hours, as well as Criteria II credit in the North Carolina Environmental Educators (NCEE) certification program.

Measuring Air Quality

Air quality is an environmental factor that affects all of us. What is air quality, what is ground level ozone, how does air quality affect our lives? These are some of the questions that will be addressed during this workshop, July 29—31, 2009. Pisgah Forest Institute has partnered with the Great Smoky Mountains National Park to present this workshop. We will spend time at GSMNP in the field looking at different biological indicators of air quality, and learn different methods of using bio-monitoring with students in your own classroom. This workshop is designed for K-12 educators. Workshop participants are eligible to receive up to 1.5 Continuing Education Unit (CEU) credits based on 15 contact hours, as well as Criteria II credit in the North Carolina Environmental Educators (NCEE) certification program.

There is no cost to participants including room, board, resource notebook, and many classroom takeaways! For more information and to pre-register, go to our website at www.PisgahForestInstitute.org

Sustainable Forestry Teachers' Academy

Coastal Academy, based in New Bern JUNE 15-19, 2009
Mountain Academy, based in Asheville JULY 20-24, 2009

The Sustainable Forestry Teachers' Academy is a four-day residential program that focuses on the social, economic, and environmental aspects of sustainable forestry. Teachers will visit a variety of forests and mills learning about forest management and the manufacturing of various wood products such as paper, furniture, plywood and lumber. Teachers participate in tours and hikes in forests under a variety of ownership and management plans. Excursions to museums, state forests, experimental forests, and environmental learning

centers round out the experience.

Meals, lodging, and transportation during the Academy are provided, however participants are required to submit a \$100 deposit, which will be returned upon arrival. CEU renewal credits will be awarded.

The online application and more information including sample agendas and pictures is **due May 8, 2009** and can be viewed at www.ncsu.edu/feop/teachers.

Multiple teachers from the same school, and teachers of all disciplines, are encouraged to apply! This opportunity is available only for teachers associated with a school district, non-formal educators do not qualify. Questions? Contact Renee at 919-515-5518 or renee_strnad@ncsu.edu.

Dixie Deer Classic

Raleigh, NC - Wildlife scavenger hunts, turkey calling contests, a bow shoot, face painting, retrievers, snakes, and raptors are just the beginning of a fun filled day for the entire family at the Dixie Deer Classic's "Youth Day" on Friday March 6, 2009 at the North Carolina State Fairgrounds in Raleigh, North Carolina

Oh Deer! Youth Wildlife Workshop

Middle and High School students will learn more about the amazing white-tailed deer in a NC Public School approved event "Oh Deer!" wildlife workshop beginning at 9:00am. Discover what deer eat and where they live. Explore the dangers that deer face today, and how these dangers can sometimes affect you. Learn what makes a good wildlife habitat by participating in a hands-on soil lab, and explore NC's wildlife treasures through a wildlife scavenger hunt. Learn about careers in wildlife; and participate in an interactive, award-winning QDMA video that has earned the international "The Wildlife Society's Conservation Education Award", the national "Outdoor Writers Association of America's Golden Eco Award", and recommendation of the National Science Teacher's Association.

Additional details can be found on the State Board of Education Events Calendar Website at http://www.ncpublicschools.org/calendar/cal_event?id=1710.

Seating for the Oh Deer! White-tailed deer Workshop is limited and reservations are recommended. Special group rates and sponsor-paid admission are also available, but only by reserving a seat in advance at ncqdma@yahoo.com or by calling 919/552-9449. Sponsor-paid admissions are available to school classes and youth groups of 25 kids or more and will be offered on a first-come, first-serve basis.

Reservations are not necessary for all other Youth Day events and will be of interest to kids of all ages.

The Future of White-tailed Deer Management Workshop

Adults will enjoy the professional track, "The Future of White-tailed Deer Management", which will follow the student event that day at 1:30pm, offering Environmental Education and CFE credits. This workshop will compare and contrast white-tailed deer management strategies, present cutting-edge white-tailed deer research, explore management of North Carolina's native habitats, and feature a panel discussion by some of the nation's leading white-tailed deer experts.

Reservations for the professional track are required, and may be reserved by sending name, address, phone and e-mail, to ncqdma@yahoo.com or by calling 919/552-9449.

Complements of the Wake County Wildlife Club, Youth 12 and under will be admitted for free and kids age 13-18 get into the Dixie Deer Classic for half price (\$5) on Youth Day. Adult admission to the 2009 Dixie Deer Classic is \$10 and will include admission to all three days of the Classic, the scoring of one deer, and admission to all workshops and seminars, including "The Future of White-tailed Deer Management."

North Carolina Biotechnology Center's 2008-2009 Mini-Grant Program

Applications are now being accepted for the North Carolina Biotechnology Center's 2008-2009 Mini-Grant Program. All proposals must be submitted electronically using the Biotechnology Center's online submission process. Proposals must be received by noon on January 21, 2009.

The Biotechnology Education Mini-Grant Program offers awards of up to \$6,000 to assist in the development and implementation of activities, programs, and courses for biotechnology education and training at the K-12 level. Any North Carolina non-profit institution may apply.

For detailed information or to apply for a Biotechnology Education Mini-Grant, please go to http://www.ncbiotech.org/services_and_programs/grants_and_loans/mini_grant/index.html.

Toyota TAPESTRY Grants for Science Teachers

Toyota Motor Sales, U.S.A., Inc. and NSTA are pleased to announce the 19th annual Toyota TAPESTRY Grants for Science Teachers program. This year Toyota will award \$550,000 in grants to K-12 teachers of science. A total of 50 large grants of up to \$10,000 each, along with 20-30 mini-grants of up to \$2,500 each will be awarded. Categories include environmental science, integrating literacy and science and physical science. Toyota has awarded 986 grants totaling over \$8 million in this premiere nationwide grant program.

For further information and to begin the application process online, please visit <http://www.nsta.org/pd/tapestry>. The online applications are now available! The deadline for submission of online entries is January 21, 2009.



Donors Choose

Welcome back to school Carolina teachers! This year, Progress Energy will fund up to \$75,000 in energy-related project requests in the Carolinas. No special action is required to qualify! Simply log into your DonorsChoose.org account and submit one or more project requests for tools that will help your students learn about energy.

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