

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.

10645 • Women in Aviation: Pioneers of Courage
September 29–October 3: Ocracoke

From Amelia Earhart and Bessie Coleman to Sally Ride and Eileen Collins, female aviators, like teachers, have embodied the strength, commitment, and spirit to take on challenges—even in the face of obstacles and

opposition. What better place to explore flight and the lives of women in flight than on the Outer Banks, the sandy land where humans first took to the skies on that cold, windy day in December of 1903? Discuss what aviation meant to these aviators and how their courageous journeys into the skies made history. Explore the dynamics of flight with hands-on classroom instruction. Weather permitting, experience flight in a small plane. Put your understanding of flight to the test by designing your own aerodynamic crafts. Investigate Bernoulli's Principle on a sailboat as you consider how a sail, a vertical wing, propels a boat. Study the lives of these amazing women and reflect on your life, your students, and the courage it takes to soar to new heights. on study and learning environment with colleagues from all over the state.

10705 • It's Not Easy Being Green

October 13–17: Cullowhee

Green your home. Green your school. Give a hoot, don't pollute. Minimize your carbon footprint. We've all heard these mantras of environmental stewardship, but where do we start? How do we implement sustainable practices in our daily lives? And what, exactly, is sustainability? Global warming? Green certification? How do we keep from getting depressed when we think of the monumental task ahead of us? Knowledge is power. Investigate how to be a responsible environmental steward in a world of increasing energy demands. Discuss how to make better choices as a consumer and citizen of the world. Explore the development of new technologies that sustain the earth. Learn how the North Carolina Solar Center works with schools to design and install photovoltaic systems, providing hands-on learning for students. Discover how a local green energy park has turned a problem into a solution by capturing a landfill's methane gas for use as fuel. Witness the rapidly emerging field of green building at the Biltmore Farms' Ramble community, a collaboration between regional artists and the construction industry. This seminar is designed to inspire, educate, and make it easy for you and your students to be green.

10735 • Uncertain Journey: The Autumn Migration of Winged Creatures

October 13-17: Cullowhee

Possibly the riskiest time in any animal's life occurs during its annual migration cycle. Each autumn, mammals, fish, birds, butterflies, and even dragonflies, set out on journeys across thousands of miles of unfamiliar and often dangerous territory. How are they able to navigate such vast distances? Why do they undertake such a perilous voyage in the first place? Witness firsthand the spectacle of scores of hawks and other raptors soaring on the southward thermal currents. Assist biologists as they capture, band, and release migrating songbirds and raptors. Visit a significant monarch butterfly migration stopover point and discover how these delicate creatures manage an expedition that will eventually take them to the mountains of central Mexico. Learn how scientists are using new advances in technology to probe the mysteries of dragonfly migration. Experience the magnificent beauty of the southern Appalachian Mountains in autumn and bring back the wonder and understanding of nature to your students.

10755 • Starry, Starry Night

October 20–24: 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.

10800 • Sea, Sand, and Human Hands:

The Changing Face of the Outer Banks

October 27–31: Ocracoke

What physical conditions form and maintain barrier islands? What adaptations allow plants and animals to survive in these diverse, fragile, and sometimes hostile habitats? Journey along the Outer Banks as we address these questions and more. See and hear the rush of tides and feel the pull of sand beneath our feet. Investigate the varied ecological communities of the Outer Banks, including the maritime forests, the sound-side marshes, and the ocean tidal communities. Learn how conservation organizations are focusing their efforts to preserve such regions. Our trek along the coast will introduce us to rare, endemic, and endangered flora and fauna. At Jockey's Ridge State Park, see the tallest active sand dune system in the eastern United States and learn about the effects of wind and wave on these shifting structures. Assess the effects of economic

development and the growing human population on the islands' natural communities. Join us as we gain knowledge of the natural flow of life.

10885 • Climbing the Double Helix: Is DNA Destiny?

November 10–14: Ocracoke

Even fifty years after the discovery of the DNA molecule, scientists continue to debate the roles of environment versus genetics with regard to the growth, development, and behavior of humans. What have we learned from the Human Genome Project? What implications does it have on ethical, legal, and social issues? What are the forces that shape our personalities and talents? What role should scientists and citizens play in shaping genetic research and application policy? Join with top research behaviorists and biologists as we explore the workings of this most fundamental of living particles, deoxyribonucleic acid. Examine the role of DNA research and technology in criminal investigations, disease treatments, and endangered species recovery. Learn how biologists are using DNA technology to promote healthy, sustainable ecosystems. Roll up your sleeves and board the Destiny traveling science laboratory and master firsthand the techniques scientists use to identify and sequence bits of DNA. Prior knowledge of biochemistry is not required for this seminar.

10940 • Hurricanes: In the Eye of the Storm

November 17–21: Ocracoke What weather conditions create and drive hurricanes? How have the Outer Banks been affected by recent hurricanes, such as Isabel in 2003? Join us in Ocracoke as we learn about these dynamic weather occurrences and their potential to bring disaster to our state. We will hear firsthand accounts from Outer Banks residents who experienced hurricanes, see evidence of the power of wind and waves, and learn more about how North Carolina's coastal communities try to protect their people and resources when hurricanes come trekking up the coast. What lessons can we learn from Hurricane Katrina and the multiple responses to such disasters from local, state, and federal governments? Since hurricane activity is not limited to just coastal areas, all North Carolinians, including mountain and piedmont residents, should be aware of the need for proper planning and responses to storms and other disasters.

10910 • Everyday Geometry: Art, Nature, and Architecture

November 10–14: Cullowhee

The laws and principles of geometry surround us in our everyday lives. Discover geometric shapes and symmetries that occur in nature, by observing leaves, blooms, and other natural formations, such as gemstones. In this multifaceted seminar, we will explore how geometry is used in art and architecture. Working with various materials we will design and create three-dimensional figures, an activity that can be replicated in the classroom. Meet with a master quilter and discuss how geometry and symmetry form the basis for many quilt patterns. Investigate the architectural use of geometry in design at the Biltmore House. Teachers from all grade levels will discover ways to incorporate everyday examples of geometry into their curriculum and encourage their students to notice and appreciate the geometry that is all around them.

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 Mickelson ExxonMobil Teachers Academy

Attend the 2009 Mickelson ExxonMobil Teachers Academy and improve your math and science teaching skills. Students can nominate teachers from Grades 3, 4, and 5 or urge them to apply for an all-expense paid trip to the Academy's math and science professional development program by logging on to www.sendmyteacher.com, an interactive website.

Developed in conjunction with the National Science Teachers Association and Math Solutions, the Mickelson ExxonMobil Teachers Academy enables teachers to hone their science and math teaching skills, enhance their curricula, and discover innovative new ways to inspire students.

The teachers will spend five days next July at the Liberty Science Center in Jersey City, NJ, deepening their understanding of mathematics and science content, building expertise in facilitating student learning through problem solving and inquiry, and using links between math and science that support student learning and understanding in the classroom.

Teacher applications are due by October 31, 2008. The National Science Teachers Association and the National Council of Teachers of Mathematics will convene a panel of math and science experts to evaluate the entries and announce the selections in February 2009. To nominate a teacher or to learn more about the program, visit www.sendmyteacher.com.

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.



October 4, 2008, 9am - 4pm
PreK-8 Workshop
Durant Nature Park, Raleigh, NC
To Register: Karen Berry karen.berry@ci.raleigh.nc.us 919-870-2871
6-hour workshop. Participants will need to complete a simple "homework" assignment to receive 1.0 CEU credits and/or to meet EE Certification requirements.

October 11, 2008, 9am - 3:30pm
PreK-12 Workshop
Weyerhaeuser's Cool Springs EE Center, Askin, NC
To Register: Melissa Myers melissa.myers2@weyerhaeuser.com 252-514-3533
6-hour workshop. Participants will need to complete a simple "homework" assignment to receive 1.0 CEU credits and/or to meet EE Certification requirements. Participants will need to bring lunch.

October 14, 2008, 9am - 4pm
PreK-12 Workshop
Clemmons Educational State Forest, Clayton, NC
To Register: Clemmons ESF Rangers clemmons esf.dfr@ncmail.net 919-553-5651
6-hour workshop. Participants will need to complete a simple "homework" assignment to receive 1.0 CEU credits and/or to meet EE Certification requirements.

December 4 & 5, 2008, 9am - 4pm & 9am - 1pm
PreK-12 Workshop
Blue Jay Point County Park, Raleigh, NC
To Register: Blue Jay Point County Park bluejaypoint@co.wake.nc.us 919-870-4330
6-hour workshop with the option to attend day two for a full 10-hours and the high school module. Attendance on day two only is not an option.

Educator Workshops in the Smokies

Educator workshops are offered by the Great Smoky Mountains National Park. Fees for all workshops are

covered by a grant from the NC GlaxoSmithKline Foundation so they are either FREE or come with a small stipend. Contact Susan Sachs (Susan_Sachs@nps.gov) with any questions.

Got Elk!: Fall Research in the Smokies - October 24-26

Spend a weekend in Cataloochee Valley with the recently reintroduced elk and participate in other fall research projects with easy application to your classroom. Participants will receive transportation, lodging and classroom materials. Register through the NC Museum of Natural Science at www.naturalsciences.org. \$45 fee will cover transportation costs.

North Carolina National Estuarine Research Reserve

Thursday, October 2nd – Coastal Mammals (WRC – Advanced Project WILD)

North Carolina's barrier islands and other coastal areas are home to many species of mammals, both native and introduced. The NC Wildlife Resources Commission and the Rachel Carson Reserve is sponsoring a program that will offer a glimpse of these common but seldom seen animals. This workshop will be held at the NOAA/NERR Administration Building located on Pivers Island in Beaufort. There is no charge for this workshop, and it is open to the general public ages 16 and above. For more information or to register, please contact Lori Davis at 252-838-0883 or lori.c.davis@ncmail.net.

Thursday, October 9th – Friday, October 10th – Coastal Explorations

North Carolina has 2.9 million acres of estuarine and marine waters which together comprise the largest estuarine system on the Atlantic coast. Coastal Explorations, through classroom and field-based activities, introduces teachers and educators to the different estuarine and coastal habitats, reviews general ecological concepts, and discusses various coastal and man-made processes that impact the estuary. This two-day (10 hour) educator workshop will be held from 9am-5pm on Thursday, October 9th and 9am-noon on Friday, October 10th and carries 1.0 CEUs and is a Criteria I N.C. Environmental Education approved workshop. This workshop will be held at the NOAA/NERR Administration Building located on Pivers Island in Beaufort. For more information or to register please contact Dr. Jill Fegley at 252-838-0885 or jill.fegley@ncmail.net. There is a \$25 registration fee which is refundable up to 1 week prior to the event.

Ocean Awareness Day – “Ocean Exploration with Real Scientific Data”

NC Maritime Museum, 315 Front Street, Beaufort, NC; Monday, October 13, 9:00 a.m. to 3:00 p.m. Co-sponsored by the Center for Ocean Sciences Education Excellence SouthEast (COSEE SouthEast), serving educators in NC, SC, and GA.

Discover how to tap into ongoing scientific data collection and bring it into the classroom. Activities include a presentation by Dr. Hans Paerl on the local Ferry Mon project, a tour of a working research vessel, and reviews of several lesson plans and resources. The six-hour workshop, lunch, door prizes, and associated resources are provided free of charge and can be submitted for 0.6 CEU credit.

Prior to the Ocean Awareness Day, on Sunday, October 12, from 1:00 to 5:00 p.m., kayak the calm waters of the Rachel Carson Reserve and explore barrier island ecology. Kayaks, equipment, and instruction provided through workshop for the discounted price of \$15. Counts 0.4 hours toward completion of CEU credit.

Advance registration is required, and class size is limited.

To register, contact Allison Besch at allison.besch@ncmail.net, or 252-728-7317.

Elementary GLOBE K-4 Workshop

Saturday, October 11, 2008, 8:30-4:00 at the Carolina Center for Educational Excellence, Chapel Hill

GLOBE (Global Learnings and Observations to Benefit the Environment) has introduced a new program for the elementary grades that combines science and literacy. Elementary GLOBE is designed to introduce K-4 students to the study of Earth system science.

1.0 units of license renewal credit if follow-up work is completed. \$50 registration fee. Registration will be on a first-come, first-served basis. Complete the registration form at <http://unc.edu/depts/cmse/>

The Alcohol Pharmacology Education Partnership

APEP is a national project to develop and share teaching materials for high school biology and chemistry teachers. We are looking for creative minds to participate in a professional development workshop and field-test. Learn how to integrate pharmacology topics on alcohol into your teaching of basic high school biology and chemistry concepts, and then field-test the APEP modules in your science classes.

This professional full-day workshop will take place at the Southern Area NSTA Conference in Charlotte, NC (Nov 1, 2008). Teachers will receive registration to attend the conference, course materials, including a teacher's guide, a video, and web access to APEP. Substitute reimbursement available. Upon completion, teachers will receive an honorarium.

Application Deadline: April 15, 2008 For more information and an application to join our team, go to: www.rise.duke.edu/APEP

The Cosmic Lesson Competition

High School and Middle school teachers and their students are invited to participate in a unique, year-long learning adventure and the opportunity to win a Digital STARLAB Planetarium system valued at \$58,000!

Using a team approach, participants will be challenged to create a dynamic lesson using Starry Night® software for ultimate presentation in the Digital STARLAB Planetarium. Incorporating outside images, video and data, teams will attempt to create the most effective and impressive lesson possible.

Competition Timeline

The competition teams will gain proficiency with the software during the spring and summer months of 2008. On September 01, 2008, the specific subject, which the lesson must address, will be announced to all participating teams. The subject will have an earth and space science focus. Teams will then have the period of September 01 through December 31, 2008 to create their actual Cosmic Lesson. The completed Cosmic Lesson entries must be submitted by December 31, 2008.

The first place team will receive for their school a complete Digital STARLAB Projection system with 5-meter portable dome powered by Starry Night software valued at \$58,000. Additional prizes include two telescope packages.

To learn more or to register, go to www.cosmiclesson.com.

School of Galactic Radio Astronomy



Join PARI at High Point University, Saturday, November 8, 2008, 9:00 a.m. – 5 p.m. and learn how to bring radio astronomy to your classroom using our remote operated "Smiley" telescope. The workshop cost \$100 which includes 10 hours of time on Smiley radio telescope for use in the classroom. Register at www.pari.edu. Contact Christi Whitworth with questions.

Yellowstone in Winter Educator Trek

Yellowstone National Park, Montana and Wyoming
Thursday, January 15–Tuesday, January 20, 2009
(With an orientation at the Museum in Raleigh on Saturday, December 6, 2008)

Cost: \$1650 (includes airfare from Raleigh to Bozeman, Montana; ground transportation in Yellowstone; five nights lodging in the Park; a snowcoach excursion; and snowshoe rental)

Glimpse the spectacular natural wonders of America's first National Park and discover its charismatic inhabitants — elk, wolves, bison and more. Explore the connections between Yellowstone and North Carolina and discuss how to link your experiences to the classroom. Via the Museum's Web site, your students will be able follow our adventures in this winter paradise by reading daily journals, submitting questions and viewing pictures of the incredible beauty and wildness that we experience.

Due to the popularity, expense and extreme conditions of this trek, we have instituted an short application process. Contact Melissa Dowland (melissa.dowland@ncmail.net) for an application. Applications are due at the Museum by Friday, October 17, 2008.

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.



Place Based Learning Mini-Grants

The Science House is pleased to announce a new opportunity for our Northeast educational communities to engage in Place-Based Learning. We have funding for Middle and High School mini-grants to support ideas that use Place-Based Learning strategies in Northeastern North Carolina. The formal application for grant funding will be available online after September 15th. Applications will be accepted until October 1st, 2008. Learn more at www.science-house.org/pblconf/fall08.html



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.

Submit your request(s) by October 15th for your best chance at funding.

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