

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](#).

- [NSTA New Science Teacher Academy](#)
- [The NCCAT Experience](#)
- [The Science House](#)
- [North Carolina Teacher Academy](#)
- [Pisgah Forest Institute](#)
- [Sustainable Forestry Teachers' Academy](#)
- [Biotechnology Workshops](#)
- [Smoky Mountain Science Teacher Institute](#)
- [PTRA/AAPT Physics Workshops](#)
- [Sci-Link](#)
- [Professional Learning Communities in Science](#)

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

NSTA New Science Teacher Academy

Science teachers located throughout the country, who will be entering their second or third year of teaching and whose schedule is a minimum of 51 percent middle or high school science, are encouraged to apply to the 2009 NSTA New Science Teacher Academy. Last year, more than 800 applications were received, and 185 teachers from 49 states and the District of Columbia were selected to participate.

NSTA will again select 185 teachers to participate as fellows in the 2009 Academy. NSTA Fellows chosen for the program receive a comprehensive membership package, online mentoring with trained mentors who teach in the same discipline, and the opportunity to participate in a variety of web-based professional development activities, including web seminars. In addition, each NSTA Fellow receives financial support to attend and participate in NSTA's National Conference on Science Education, taking place in Philadelphia, March 17-21, 2010.

For more information about the NSTA New Science Teacher Academy or to learn how to apply to become a fellow, please visit www.nsta.org/academy. Applications must be submitted no later than **June 1, 2009** to be considered. Don't delay, apply now!

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.



11670 • Catching Up with Your Students: Navigating Technology for the 21st Century

June 29–July 3: Cullowhee

Our students live in a digital world, with the ability to contact anyone, anywhere, anytime. How can we catch up with our students? Enter this world and acquire technology skills needed to navigate the rivers of the digital age. Empower all students to pursue their individual creativity by developing technology enriched learning experiences. Learn to facilitate effective use of current and emerging digital tools. Expand your fluency in technology systems. Gain confidence and skill in accessing information as you integrate technology seamlessly into your curriculum. Promote and model digital citizenship and responsibility. Capitalize on your students' excitement and guide them on a safe, legal, and ethical journey into the digital universe.

11685 • The Ecology of Barrier Islands

July 6–10: Ocracoke

If our students are going to grow into responsible stewards of North Carolina's critically important coastline, their understanding of this region has to go deeper than sands, tans, and seafood restaurants. 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?

11780 • Everyone Needs a Little Mystery: CSI in Your Classroom

July 27–31: Cullowhee

Our survey of forensic science techniques will span from fingerprinting and impression analysis to forensic entomology, bite mark analysis, the physics of blood spatter, and much more. Use the equipment that the professionals use and hone your powers of observation and deduction as you assume the guise of expert CSI—Crime Scene Instructor. You will process a crime scene and explore DNA forensic analysis in a state-of-the-art laboratory. Middle and high school science teachers are encouraged to apply. It would be a crime to miss this seminar.

11820 • Multimedia in the Classroom: Empowering Student Learning

August 3–7: Cullowhee

Discover the increasing range of instructional strategies that technology offers and how to use these strategies to enhance teaching and learning. Examine multimedia projects that have been effective in classrooms. Determine how to choose projects that address curriculum standards, are pedagogically sound, and appeal to a wide range of learners. An exciting whitewater rafting trip down one of the most scenic rivers of western North Carolina will give us an opportunity to gain mastery of new media techniques as we weave technology, digital photography, and curriculum plans in the creation of our own multimedia.

11850 • Natural Rhythms of the River

August 10–14: Cullowhee

These unique ecosystems harbor an amazing array of organisms that are noticed by only the most observant. Measure the pulse of a small yet surprisingly rich stream with biologists and analyze the biodiversity of this unique environment. Examine firsthand the dramatic shaping power of water as we hike a section of a wilderness river gorge guided by regional geologists. Explore the economic impact of rivers in North Carolina as we whitewater raft on the scenic Nantahala River. Deepen your understanding of river ecology as we discuss the wonders and threats to the natural rhythms of the river.

11885 • Endangered Species: Saving the Loggerhead and Piping Plover

September 13–17: Ocracoke

Plant and animal species are important indicators of the health of our ecosystems. When a species becomes endangered, it is a signal that other aspects of our environment are also being threatened. Currently, there are many species identified as rare or threatened and soon they could be designated as endangered. Join us on the Outer Banks as we explore salt marshes, maritime forests, and coastal beaches, identifying threatened species and discussing the human impact on these fragile ecosystems. Evaluate the Endangered Species Act, passed by Congress in 1973, and debate how its impact is affecting human activities. Learn about the Sea Turtle Rescue and Rehabilitation Center's ongoing efforts to save the loggerhead sea turtle.

12065 • Get the Picture? The Math, Science, and Art of Photography

October 25–29: Cullowhee

Shutter speed, aperture diameter, depth of field...who knew there was so much math and science involved in taking a high-quality photograph? Discover how this unique art form can provide an ideal vehicle for strengthening math and science skills while enhancing creativity in all students. Understand how photographers not only record what is visual but create and preserve a sense of time and place. Likewise, photographers use high-level critical thinking skills as they identify problems and explore new solutions. Experiment with the variables of distance, light, and field of view as you explore and photograph the cabins and creeks of western North Carolina. This seminar will change the way you view and take pictures. No prior training in photography is necessary; however, participants must provide their own 35mm single-lens reflex (SLR) camera.

12085 • Awakening Your Inner Einstein: Science for the Non-Science Teacher

November 1–5: Cullowhee

Young children enthusiastically embrace learning about the world they live in with fearless abandon. Their innate sense of curiosity leads them to try to understand how the natural world is put together and what makes it tick. So why, many years later, do so many adults—including teachers—often consider themselves a “nonscience” person? Somehow many of us have misplaced our instinctive desire to understand the world around us and have walled ourselves off from much of the joy and magic the universe has to offer. What is it that holds atoms together? How does DNA provide a blueprint for all living things? Will the universe continue to expand indefinitely? Investigate the natural world with renowned scientists discovering user-friendly and innovative inquiry-based activities. Join us as we seek to rekindle that spark of curiosity that still glows inside us all.

12220 • Climbing the Double Helix: Is DNA Destiny?

December 1–5: 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. Prior knowledge of biochemistry is not required for this seminar.

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

Summer Imhotep Academy



The summer session of Imhotep Academy, Exploring Our World, will be held July 6 to 10, 2009 7:45 am - 12:15 pm each day. Students and parents must attend the mandatory orientation scheduled for Tuesday, June 24, 2009 at 6:30 pm at The Science House (909 Capability Drive, Raleigh, NC 27606, Suite 1200). In order to complete the registration process, we need your payment of \$125.00. After May 1, the cost is \$150.00.

Algebra is a powerful tool for making sense of the world, solving problems, modeling everyday numerical scenarios and can be learned by all students and their parents too. The Imhotep Algebra program will be held July 20 - 24, 2009 7:45 am - 12:15 pm each day. Students and parents must attend the mandatory orientation scheduled for Tuesday, July 14, 2009 at 6:30 pm at The Science House (909 Capability Drive, Raleigh, NC 27606, Suite 1200). In order to complete

the registration process, we need your payment of \$125.00. After May 1, the cost is \$150.00.

Spaces are filling up fast and placement in the Academy is not guaranteed until fees are paid in full. Register today at <http://www.science-house.org/student/imhotep/>.

Environmental Science Summer Workshops

The Center for Environmentally Responsible Solvents is pleased to offer its summer workshops for high school teachers once again. Participants will receive a copy of the National Science Foundation's Science and Technology Center for Environmentally Responsible Solvents and Processes, stipend, EE Certification, 1.8 CEUs and much more! Workshops will be held in Raleigh and Greensboro. Learn more and register at <http://www.science-house.org/CO2/educators/workshops.html>

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 are available on-line at www.teacheracademy.org. 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.

Pisgah Forest Institute

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 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.

North Carolina Biotechnology Center's Workshops

Enroll now in one of the 2009 Biotechnology Workshops for Educators sponsored for the 23rd consecutive year by the North Carolina Biotechnology Center. Learn how to teach activities that will engage your students while reinforcing State education objectives. North Carolina educators receive a daily stipend, room and board, technology or regular CEUs, and access to the Biotechnology Center's Free Supplies and Equipment Loan Programs.

Five introductory workshops will be offered around the state for **high school science teachers**, and one workshop for **middle school teachers**. We hope to see you at one or more of these workshops!

Teaching Genetics and Gene Expression Using Microarray
Alamance Community College, June 15-19

Microbial Magic for Middle School Teachers
UNC – Charlotte, June 15-18

Introductory Biotechnology
Fayetteville State University, June 22-26

Introductory Biotechnology
Rowan – Cabarrus Community College, June 22-26

Marine Biotechnology
UNC – Wilmington, June 29-July 2

Introductory Biotechnology
NC Central University, July 13-17

Introductory Biotechnology
Carteret Community College, July 20-24

Biotechnology for High School Agricultural Education
NC State University, July 27-31

Introductory Biotechnology
UNC – Asheville, July 27-31

Complete information about the workshops can be found on the Biotechnology Center's Web site. Space is limited, so register now at www.ncbiotech.org/summerworkshops/.

Smoky Mountains Science Teacher Institute

Immerse yourself for one week (June 14 - 19, 2009) in the biological diversity of the Smokies and return home with exciting new ideas for involving your students in hands-on science. Throughout the week, we will visit

different Smokies habitats to learn about their amazing natural resources as well as the environmental problems threatening them. Each day you will become a citizen scientist, helping to inventory and monitor everything from salamanders to slime molds. Increase your own science skills and discover new ways to do the same for your students. This workshop is a collaboration between Great Smoky Mountains Institute at Tremont, Great Smoky Mountains National Park, and Discover Life in America. Your instructors will include Tremont staff, NPS educators and scientists, and other scientists involved in research in the park. Program lasts from Sunday supper through Friday lunch.

Cost: We provide this workshop free for teachers with a \$50 refundable deposit.

[Download a Science Teacher Institute Application form](#) (PDF)

PTRA/AAPT Physics Workshops

In cooperation with UNC Greensboro, Pembroke and Charlotte, the Physics Teaching Resource Agents (PTRA) Project of the American Association of Physics Teachers (AAPT) is offering a series of residential, five-day summer institute specifically for North Carolina teachers, at UNCG, UNCP and UNCC, at no cost to your schools or the participants! Our institutes this summer include:

June 15 – June 19, 2009 (Energy & Momentum) at UNC Pembroke

June 22 – June 26, 2009 (Electricity & DC Circuits) at UNC Pembroke

July 27 – July 31, 2009 (Energy & Momentum) at UNC Greensboro

August 3 – August 7, 2009 (Electricity & DC Circuits) at UNC Greensboro

July 13 – July 19, 2009 (Motions & Forces) at UNC Charlotte

August 10 – August 14, 2009 (Energy & Momentum) at UNC Charlotte

These summer institutes will be lead by highly regarded and specially prepared mentor teachers, and will focus on content and strategies appropriate for preparing students for the North Carolina Standard Course of Study in Science with emphasis on Middle School 7th Grade Competency Goals 1 and 6, High School Physical Science Competency Goals 1 and 2, and High School Physics Competency Goals 1, 2, 3, and 4. Could you help us by distributing copies of this letter and the accompanying application to your teachers of physical science and/or physics? Applications also available at <http://www.uncg.edu/phy/workshops/>

Sci-Link

Grandfather Mountain International Workshop

June 23-28, 2008* Banner Elk NC

THINK GREEN Educators from many states, teachers from Finland and Brazil including Brazilian photojournalist Daniel De Granville will experience this transformative week in the North Carolina mountains! Immerse yourself in the mountain environment through research presentations and outdoor activities! Develop and share 'green' hands-on, inquiry-based activities to take back to your classrooms and non-formal centers. Presentations about how to become 'green' – in NC and in different countries. Scientists/ experts on wildlife, and natural history of the area. http://www.ncsu.edu/scilink/grandfather_intial_page.htm

Sao Paulo/Amazon Adventure

July 26 – August 8, 2009

Travel with Brazilian educators on a 15-day AMAZON/ Sao Paulo, international education and ecology experience! Week One in Sao Paulo; Week Two in the Amazon, world's largest rain forest; visit the people of the many communities. Join U.S. and Brazilian educators and experts, side by side! Visit Web site to update scholarship opportunities. http://www.ncsu.edu/scilink/brazil_intial_page.htm

Professional Learning Communities in Science: Designs, Tools, and Resources for Improving Student

Learning

Who should attend: Teams of science educators—teachers and administrators

When: August 3–5, 2009

Where: Orlando, Florida (Buena Vista Palace, 1900 Buena Vista Drive, Lake Buena Vista, FL 32830)

Cost: \$300

Take advantage of this special NSTA summer institute scheduled for Aug. 3–5 in Orlando, Florida. The three-day institute is designed to help teams of educators learn how to develop and support a science-focused Professional Learning Community (PLC) that has continuous improvement in science teaching and learning at its core. Participants will learn what PLCs are (and are not), examine different structures for PLCs, and experience different science-specific tools and strategies to use within a PLC.

A team of national presenters, led by Susan Mundry and Kathy Stiles of WestEd, will present different models of PLCs, share tools and resources that support the work of science teachers in PLCs, and facilitate planning sessions for implementing PLCs in schools and other organizations.

For additional details, visit <http://www.nsta.org/conferences/2009/summerinstitute.aspx> or contact Zipporah Miller at 703.312.9235 or by e-mail at zmiller@nsta.org. Application deadline is July 15, 2009.

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The Science Reflector

Newsletter of the North Carolina Science Teachers Association

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