

Sharing Seeds of Knowledge: Community Seed Libraries in K-12 Schools

Growing Classroom 110

Alyssa Putt, Education and Instruction Librarian, State Library of North Carolina

Do you have access to dirt and paper? You can start a seed library at your school. This workshop will explore the basics of seed saving and seed libraries as well as strategies for integrating school gardens and native plantings into lessons for all ages and content areas. We will discuss ways to foster hands-on learning in science, math, literacy, art, and more. Join us to learn practical strategies for saving seeds with students and starting a seed library at your site to cultivate a deeper connection to the natural world in your school community!

TARGET GRADE LEVEL: K-12

Reimagining the Curriculum: Native American History and Culture

Bell Seminar Room

Stephen Bell, American Indian Education Coordinator, Guilford County Schools

Participants will engage in reflecting on experiences and reimagining curriculum from a culturally responsive lens to better teach Native American history and culture.

TARGET GRADE LEVEL: K-12

Rooted in Standards: Outdoor Learning at the NC Botanical Garden

Meet in Courtyard

Cindy Furey, Youth Environmental Education Specialist, NC Botanical Garden

Lauren Greene, Youth Environmental Education Specialist, NC Botanical Garden

Discover how outdoor learning can spark curiosity while meeting classroom goals! Join the NCBG's youth education staff for a hands-on outdoor session featuring standards-based activities on themes like soil, habitat needs, and plant adaptations—designed to engage preschool through 5th grade learners. We'll take a walk through the beautiful fall garden and try out field trip and camp activities that connect children to nature and place in meaningful, memorable ways. Along the way, we'll answer your questions and see what discoveries we might make together.

Come ready to move, explore, and be inspired!

TARGET GRADE LEVEL: PRE-K-5

4:10 PM – 4:30 PM

Closing Remarks and Evaluation

Marty Wiggins, Program Consultant, NC Office of Environmental Education and Public Affairs, Department of Environmental Quality

NORTH CAROLINA 2025 OUTDOOR CLASSROOM SYMPOSIUM

Environmental Literacy Through Natural Phenomena: Teaching Science with the Observable World

SPECIAL THANKS TO THE PROGRAM PARTNERS:



The DEQ Office of Environmental
Education and Public Affairs



NORTH CAROLINA
BOTANICAL
GARDEN



North Carolina Department of
PUBLIC INSTRUCTION



NC DEPARTMENT
OF NATURAL AND
CULTURAL RESOURCES

Albemarle - Pamlico
National Estuary Partnership



2025 NC Outdoor Classroom Symposium

Environmental Literacy Through Natural Phenomena:
Teaching Science with the Observable World

EVENT SPEAKERS

Dr. Charles Aiken

Section Chief

Mathematics, Science, and STEM

Office of Teaching and Learning
NC Department of Public Instruction

Pamela Cashwell

Secretary

NC Department of Natural and Cultural Resources

MONDAY, OCTOBER 13, 2025

NC Botanical Garden

8:45 AM – 9:15 AM

Registration and Coffee

Covered walkway outside Reeves Auditorium

9:15 AM – 9:30 AM

Welcome and Opening Remarks

Reeves Auditorium A and B

Lisa Tolley, Program Manager, NC Office of Environmental Education and
Public Affairs, Department of Environmental Quality

Elisha Taylor, Director of Learning and Community Engagement,
NC Botanical Garden

Pamela Cashwell, Secretary, NC Department of Natural and Cultural Resources

9:30 AM - 9:50 AM

General Session

Reeves Auditorium A and B General Session

**Environmental Literacy Through Natural Phenomena:
Teaching Science with the Observable World**

Dr. Debra Hall, K-5 Science Consultant, Office of Teaching and Learning,
NC Department of Public Instruction

Benita Tipton, Secondary Science Consultant, Office of Teaching and Learning,
NC Department of Public Instruction



10:00 AM – 10:45 AM

Sessions

Learn to Love Lichens

Reeves Auditorium A

Janina Millis, NC Air Awareness Coordinator
Department of Environmental Quality's Division of Air Quality/NC Air Awareness

Discover the significance of air quality science and its impact on our natural world, including the use of bioindicators like lichen. Explore the various types and complete a community science survey to learn about the lichen and air quality near you using real-time data!

TARGET GRADE LEVEL: 6-8

NC Atlas of Phenomena

Reeves Auditorium B

Dr. Debra Hall, K-5 Science Consultant, Office of Teaching and Learning,
NC Department of Public Instruction

Benita Tipton, Secondary Science Consultant, Office of Teaching and Learning,
NC Department of Public Instruction

Discover how the North Carolina Atlas of Phenomena (NCAP) can bring local phenomena into your science instruction. This resource helps educators connect the North Carolina Standard Course of Study for Science to real-world, place-based examples, supporting students in making predictions, solving problems, and explaining the natural world. Join us to explore how NCAP can be used in both formal and nonformal settings to spark curiosity and deepen science understanding.

TARGET GRADE LEVEL: K-12

Using Artificial Habitats to Enhance Outdoor Learning

Joslin Classroom 106

Christine Peckman, Outdoor Education Coordinator,
Chestnut Ridge Camp and Retreat Center

Artificial habitats offer an exciting way to connect students with reptiles and amphibians, bringing these often elusive creatures closer to our everyday lives with minimum disruption to the ecosystem. They create opportunities for hands-on learning, deepen our understanding of the natural world and encourage us to develop a sense of responsibility toward conservation.

TARGET GRADE LEVEL: K-12

Lincoln Heights: The Story of an Environmental Connections
Magnet Elementary

Joslin Classroom 107

Laura Wood, Environmental Connections Integration Specialist,
Lincoln Heights Environmental Connections Magnet Elementary School

Learn about Lincoln Heights, a public Environmental Connections Magnet Elementary School in Wake County – from the inception of the program all the way to the school's current designation as a top "Magnet School of America." Explore the school's outdoor learning and teaching locations, integration of environmental connections and the unique programs and partnerships we have developed over the years. Come and see what you can take back to your classroom and school!

TARGET GRADE LEVEL: K-12

What's Your Evidence for That?

Growing Classroom 110

Michelle Pearce, Programming Lead, Environmental Educators of North Carolina

Explore how observations become data, how data becomes evidence, and how evidence is used for explanations. But how do we know if the evidence is strong? We'll also explore the criteria used to determine the strength of evidence with some replicable student activities.

TARGET GRADE LEVEL: K-12

Teaching Outdoor Ethics and Setting Expectations

Bell Seminar Room

Kristin Owens-White, Environmental Connections Teacher,
South Stanly Middle School

Learn how to set expectations for outdoor learning areas and learn more about ethical practices when engaged in outdoor activities. The participants will have tools and lesson plans to teach their students the seven principles of Leave No Trace.

TARGET GRADE LEVEL: K-12

10:55 AM – 11:40 AM

Sessions

Discover Your Urban Forest with Project Learning Tree

Reeves Auditorium A

Renee Strnad, Project Learning Tree State Coordinator

Most students and their families are city dwellers. Discover Your Urban Forest from Project Learning Tree encourages learners in grades 6-8 to investigate environmental issues that affect their community. The three activities in the DYUF activity bundle lead students on investigations that help them understand that being outdoors has many benefits, the quality of our outdoor environments differs, and determining how community land is used can be a participatory activity. Attendees in this session will receive copies of the activity bundle. Some activities include variations for grades 3-5.

TARGET GRADE LEVEL: 6-8





Connecting with Your Local Soil and Water Conservation District

Reeves Auditorium B

Lisa Marochak, Senior Administrative Officer,
Durham County Soil and Water Conservation District

Sherry Scully, Ag Development Coordinator,
Durham County Soil and Water Conservation District

Monica Unger, Teacher, R.N. Harris Elementary

Learn how Durham Soil and Water Conservation District has engaged Durham schools in environmental education and how you can connect with your local District. We'll discuss programs, contests, funding opportunities, and more. In addition, we will share examples of outdoor education learning centers created with the assistance of Soil & Water Conservation Districts. This session will give you innovative ideas on how you can implement outdoor learning centers at your school.

TARGET AUDIENCE: PRE-K - ADULTS

Unlocking the Outdoor Classroom: A Living Laboratory for Learning

Joslin Classroom 106

Mary Bures, Vice President, Outdoor Engagement, NC Wildlife Federation

Explore tips and actionable ideas to transform the outdoors into a dynamic and engaging learning environment - a living laboratory where curiosity blossoms and connections to the natural world deepen. Resources and programs offered by the North Carolina Wildlife Federation (NCWF) that can support and enrich outdoor education initiatives will also be highlighted.

TARGET GRADE LEVEL: K-5

Learning Happens Here with NCDNCR

Joslin Classroom 107

Sonya Davis, K-12 Professional Development and Education Manager,
NC Department of Natural and Cultural Resources

Jorge Malo Guajardo, Multilingual Program Manager,
NC Department of Natural and Cultural Resources

*For over 50 years, the NC Department of Natural and Cultural Resources (DNCR) has inspired a love of learning through its museums, parks, historic sites, zoo, aquariums, libraries, symphony, and archives. This session introduces DNCR's Learning Happens Here initiative, which supports K-12 educators with immersive field trips, standards-aligned resources, and professional development. You'll explore top classroom resources, learn about field trip funding, and take part in a hands-on activity inspired by our newest publication, *Plott's Tales and Trails*; a free copy is yours to keep and free classrooms sets are available on request!*

TARGET GRADE LEVEL: K-12

Creating Inclusive Outdoor Experiences: Tools and Strategies for Diverse Student Needs

Growing Classroom 110

Sarah Tanke, Horticultural Therapist-Registered,
Interim Therapeutic Horticulture Program Manager, NC Botanical Garden

Explore practical ways to create inclusive outdoor experiences that engage diverse learners. Drawing on resources offered at our garden, we'll highlight tools such as social stories, schedule cards, and sensory kits designed to support students with varied needs. Participants will gain strategies to foster accessibility and comfort in natural settings.

TARGET GRADE LEVEL: K-12

Inquiry Based Science Learning Utilizing the 5E Model

Bell Seminar Room

Jim Luft, Instructional Coach, Out Teach

*The 5E Model of Science Instruction provides a powerful framework for fostering inquiry, engagement, and deep conceptual understanding. In this session, participants will explore how the five phases—**Engage, Explore, Explain, Elaborate, and Evaluate**—work together to support student learning. Educators will examine practical strategies for applying the model at the lesson, unit, and program level, and consider how to adapt it to their own classrooms to promote curiosity, critical thinking, and lasting comprehension.*

TARGET GRADE LEVEL: K-5

11:50 AM – 12:00 PM

Gather in Reeves Auditorium for lunch instructions and lunch speakers

Dr. Charles Aiken, Section Chief, Mathematics, Science, and STEM,
Office of Teaching and Learning, NC Department of Public Instruction

Dr. Bill Crowell, Director, Albemarle-Pamlico National Estuary Partnership

Christie Norris, Director of Education,
North Carolina Department of Natural and Cultural Resources

12:00 – 1:00 PM

Lunch

You are welcome to eat your lunch in the auditorium or in the garden. Please visit the resource table. The garden shop is open and has a great selection of books, art, T-shirts, and native plants.

1:00 PM to 2:30 PM

Sessions

Outdoor and Place-Based Explorations for Examining Extreme Heat in Your Community

Reeves Auditorium A

Emma Refvem, PhD, NBCT, 6-12 Science Specialist, Durham Public Schools
Ashton Merck, Program Manager, Climate Research and Engagement, Museum of Life and Science

Imani Vincent, Associate Program Manager, Climate Research and Engagement, Museum of Life and Science

Explore place-based and hands-on activities, including outdoor explorations, designed to engage students in learning about extreme heat and the urban heat island effect. Featured activities invite students to: (1) use sensors to explore microclimates on their school campus and consider implications for extreme heat days, (2) interpret temperature maps to identify the hottest areas of a city, and (3) evaluate solutions that can reduce the heat island effect and protect public health during extreme heat events. This session will feature ready-to-implement lessons that include literacy integrations and options for differentiation across grade level and content area.

TARGET GRADE LEVEL: 9-12

"The Sky is Falling!" Practicing Scientific Inquiry Through Acorn Analysis

Reeves Auditorium B

Megan Davis, Manager of Teacher Education, NC Museum of Natural Sciences

To quote Chicken Little, "The sky is falling! The sky is falling"! During uncertain times, paying closer attention to the seasonal cycles of the natural world can help both teachers and students feel more grounded. Join us as we practice scientific inquiry to unravel the mystery of falling acorns. Why do acorns fall in the autumn? What happens to them? Why are they important for life cycles of plants and animals? We'll use our nature journals/science notebooks to document our observations and investigations. Walk away with a greater understanding of this simple (but complex) phenomenon.

TARGET GRADE LEVEL: K-12

Help Scientists from Your Schoolyard

Joslin Classroom 106

Chris Goforth, Head of Collaborative Science, NC Museum of Natural Sciences

Learn how to engage your students in citizen science on your schoolgrounds! We'll practice with a couple of projects and explore educational materials that may help you bring this fun approach to learning science to your classroom.

TARGET GRADE LEVEL: K-12

Nature as Classroom: Discovering Phenomena in the Schoolyard

Joslin Classroom 107

Misty Parrish, Schools in Parks Specialist, NC State Parks

Jason Vanzant, Schools in Parks Specialist, NC State Parks

Sarah Yelton, Environmental Education Manager, Center for Public Engagement with Science, UNC Institute for the Environment

Discover how to turn your schoolyard into a dynamic science classroom! This hands-on session will highlight outdoor learning strategies and activities designed to investigate natural phenomena and aligned with North Carolina science standards. Join the Schools in Parks Collaborative to explore ways to engage students in observing, questioning, and exploring nature right outside their classroom doors. Learn how to connect curriculum goals with real-world experiences and foster curiosity through schoolyard investigations.

TARGET GRADE LEVEL: (K-5)

The UnderStory Project: Seed Balls and Sling Shots

Growing Classroom 110

Lisa Pope, ForestSmart Schools Coordinator, Catawba College Center for the Environment

Seed ball technology is a campus-community greening technique that fosters environmental literacy, a deeper connection to the environment and to others. School campuses are the best opportunity to emphasize systems that restore, renew, and revitalize learners and learning spaces. The UnderStory Project encourages active engagement, problem solving, and critical thinking through authentic projects that support the learning environment, students, and communities.

TARGET GRADE LEVEL: K-12



Cultivating Learning: A Guide to Creating Low-Maintenance Perennial Gardens for Your Classroom

Bell Seminar Room

Amanda Bratcher, Horticulture Agent,
NC Cooperative Extension – Lee County Center

Transform your outdoor space into a living laboratory! This session will provide K-12 educators with the tools and confidence to design, install, and maintain a beautiful, low-maintenance perennial garden of any size. Learn how to select the right plants for your space and explore simple lessons to engage students with horticulture, plants, and pollinators year-round. We'll also cover how to integrate the garden into the Great Southeast Pollinator Census and share existing curricula. The lecture will be followed by a guided walk to showcase these concepts in action.

TARGET GRADE LEVEL: K-12

Geology: Hidden in Plain Sight

Meet in Courtyard

Amy Pitts, Senior Geologist for Education and Outreach, NC Geological Survey

Look beyond rock and mineral samples to the real-world uses of those geologic resources. Geology is all around us, hidden in plain sight. We'll explore our surroundings to put a real-world spin on geoscience.

2:40 PM – 4:10 PM

Sessions

Growing in Science through the Power of Literacy

Reeves Auditorium A

Krista Brinckek, Science Specialist, Wake County Public School System

Stacy Darwin, Librarian Specialist, Wake County Public School System

*What do you get when you combine a fantastic children's story, outside nature connections, body movements, and place-based science at your school? A great **StoryWalk** event! Join us to learn what a **StoryWalk** is all about, and how to connect children's literacy to exciting science projects. This session will dive into how to combine literacy and science to create an intergenerational family school event that is free and encourages outside participation and exploration.*

TARGET GRADE LEVEL: K-12

Using Nature Journals as a Tool for Scientific Inquiry

Reeves Auditorium B

Megan Davis, Manager of Teacher Education, NC Museum of Natural Sciences

Your students' observations and investigations of the natural world are the perfect foundation for working on all the scientific and engineering practices, but how do we get started? Join us for a quick introduction to science with notebooks/nature journals. Learn some tips and tricks on making and using them students. Break in your new journal with a variety of activities that leave you feeling inspired to explore the outdoors in all the subjects.

TARGET GRADE LEVEL: K-12

Creative Pathways to Standards: Outdoor Learning and Community Partnerships in Action

Joslin Classroom 106

Erin Carroll, Outdoor Learning Specialist, Durham Public Schools

Amanda Bowers, Elementary Science Specialist, Durham County Schools

Learn how Durham Public Schools has successfully integrated outdoor learning across schools and how these practices align with academic standards. Explore strategies to encourage outdoor learning in traditional learning spaces. Through shared stories and practical models, you'll discover how schools and community partners can work together to enrich instruction and student engagement using the outdoors. Join us for a Q&A at the end that will help you take these ideas back to your own community.

Water Education in the Classroom and Outside

Joslin Classroom 107

Lauren Daniel, Water Education Program Coordinator,
Department of Environmental Quality's Division of Water Resources

Rebecca Coppa, State Sedimentation and Education Engineer,
North Carolina Department of Environmental Quality

Ready to take your water education beyond the water cycle? Teachers will experience a few Project WET activities to teach about how water moves throughout the hydrosphere. We will also learn about water conservation and NC River Basins with hands-on activities and relevant, real-life data. In addition to participating in these fun Project WET activities, we will also explore resources to learn about the waterways in your community, how water resources are managed, and ideas for future projects guided by student interests.

