



Daniel Stowe Botanical Garden

K-5 Guided School Programs

Educator
Guide

2009 - 2010

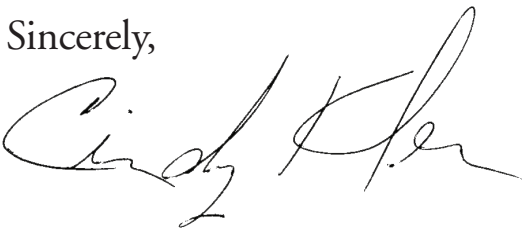


Dear Educator,

Thank you for considering Daniel Stowe Botanical Garden as a place for your class field trip. Our beautiful gardens and outdoor environment provide an ideal 'living laboratory' that excites, inspires and engages students to learn about plants, nature and the environment. Our education programs offer fun, hands-on and innovative teaching techniques that address curricular standards and instill in students a knowledge and appreciation for nature.

If I can be of any assistance in your planning, please contact me or our Reservation Coordinator at 704 829-1252 to register your class (please register early as program dates fill quickly). I look forward to seeing you and your students here at the Garden!

Sincerely,



Cynthia D. Klemmer, Ph.D.

Director of Education

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K-5 Guided School Programs

K-5 Guided Programs are designed to offer hands-on interactions that directly address required science curricular standards for each grade level. In each program, classes rotate through multiple stations including 1) a hands-on activity or experiment, 2) a Garden exploration, and 3) a pot-a-plant, so that each student leaves with their own plant to take home. Admission to the Garden is included in the fee—plan ahead to bring bagged lunches, if you wish, so that you can have lunch with your students and explore the Garden further on a self-guided basis following the program.

Cost: \$125 per class

Chaperones: At least one adult chaperone required for every 10 children. Teachers/chaperones free up to a ratio of 1 teacher for every 5 students. Beyond a 1:5 ratio, a chaperone fee of \$6 per teacher/chaperone will be charged at admission/entry.

Inch by Inch (Kindergarten)

Join us for a measuring adventure through the Garden as students discover how the Inch Worm and his friends can serve as nonstandard units of measure to compare the sizes and shapes of various plants and objects throughout our gardens. Students can draw their findings in their garden journals and apply their new measuring skills while creating a take-home garden of their own.

Keywords: size, shape, nonstandard units of measure, comparison, tools for measuring

Garden Detectives (Kindergarten and Grade 1)

The garden is an active place filled with strange and unusual plants and small critters! Students will use their natural curiosity and senses while exploring the garden to discover the 'who' and 'why' — just like a real detective! While exploring they will discover the wonderful colors and textures found in the garden and learn to compare sizes and shapes. Activities encourage good observation skills and hands on learning to ensure fun, engaging experiences for everyone. As a part of the experience, students will create their own Sensory Planters to grow at home.

Kindergarten: color, size, shape and texture

1st Grade: color, hardness, shape and size.

Keywords: senses, texture, properties of objects, similarities/differences and charting.



Plant Parts We Eat (Grade 1)

Carrots are roots, and cabbages are leaves—the parts of a plant and their function are the focus of this fun garden exploration! Students will learn the parts of a plant and their function, conduct a Plant Part Search in the gardens, and pot up their very own plant to take with them. The *Willow Maze* offers an engaging opportunity for additional review following the program, where students can play and discover for themselves the plant parts that serve as important food sources for people. *Key Concepts:* Parts of a plant, parts of a system and their function, plant life cycles, plants as sources of food and nutrition

Nature Explorers (Kindergarten and Grade 2)

Deserts, woodlands and tropical rainforests are just a few of the ecosystems that exist on planet Earth. In this fun program, students will learn where these ecosystems are, how they got there, wildlife that lives in them and more. Students will compare temperature, wind and precipitation between these ecosystems and with average local conditions. Students will also explore the Orchid Conservatory and the gardens to discover some of the unique plants that exist in these ecosystems.

Keywords for Kindergarten: ecosystems, weather concepts, wildlife

Keywords for 2nd Grade: Ecosystems and their formations, wildlife, changes in weather and its effect

Insect Exploration (Grade 2)

Insects can be plants' best friends, and the Garden is a great place to observe them. In this hands-on program, students will learn the characteristics of an insect and compare life cycles of several types of insects such as butterflies, ladybugs, and mealworms. Then, students will get to help eradicate pest insects at the Garden by participating in a beneficial insect release—a truly unique experience!

Key Concepts: Insects, stages of metamorphosis, life needs of insects, beneficial vs. pest insects

Please note that this program is well suited for secondary grade levels as well as elementary. Insects are fascinating, and a great hook for stimulating student interest! For more advanced learners, insect life cycles will comprise a brief review, while predator-prey relationships and the role of plants and insects as producers and primary/secondary consumers will be explored more in-depth.

Flower to Seed... and Back Again! (Grade 3)

In this guided discovery program, students will create their own Life Cycle Journal as they dissect seeds, flowers, and fruits. Through their dissections and through garden exploration, they will explore the connection between these key plant parts and the important role pollinators such as bees play in the process. Students will also learn about plant reproduction through seed and vegetative propagation and discover that plants have adapted an alternative method of propagation as they create their own terrarium.

Key Concepts: Plant life cycles—growth, survival, and reproduction, plant parts, pollination, germination, propagation, dissection

Eco-Underground (Grade 3)

One of the most important components of any ecosystem is its soil. The Garden provides the basis for an engaging exploration of soils—what they look like, what they're made of, and how water flows through them. Each student will participate in the scientific method as they chart the results of hands-on field experiments to test water absorption and drainage characteristics of various soil types. As a take-home project, students will each plant a cutting in 'soiless' potting soil.

Key Concepts: Soils, properties of soil—color, texture, capacity to hold water, ability of soils to support the growth of many plants, soil components —sand, clay, humus, predicting

Conserving our Carolinas: Understanding Ecosystems (Grade 4)

Understanding ecosystems and how plants are adapted to live in different types is a first step in caring for the environment in which we live here in the Carolinas. In this program, students will use relief maps to learn the geographic regions of our state and discover the distinctive attributes of each area. They will discover plants native to each region and discover how they are especially adapted for life in those areas. Along the way, students will also learn about a few invasive plants that are wreaking havoc in our precious Carolina ecosystems and create their own tiny take-home ecosystem containing a plant native to our area.

Key Concepts: Geography - physical characteristics, landforms, natural resources of the Carolinas, historical foundations in the Carolinas, native plant adaptations for survival in the Carolinas

Textile Traditions (Grade 4)

Plants have traditionally formed the basis of the textile industry, providing both fibers for use in threads and fabrics as well as plant-based dyes used to color them. In this exploratory program, students will learn just how plants were traditionally used, conduct a Hunt-to-Dye-For in the Garden to locate plants used for dyes and use a technique called plant pounding to create their own piece of colorfully dyed fabric.

Key Concepts: Geography— agricultural development in response to physical characteristics and climate, historical foundations of the Carolinas, culture of textiles in Carolina history, plants as sources of fibers and dyes used in industry

Energy in an Ecosystem (Grades 3 and 5)

Students will review the functions of organisms within an ecosystem and discover the critical link between producers, consumers, and decomposers as each competes to gain the energy they need to survive. Using the Woodland Walk as a basis for study, students will create Ecosystem Energy logs to chart organisms at each energy level, and reinforce their mastery of the concept of energy exchange by competing for energy themselves in The Energy Game. As a take-home project, students will create their own Producer Planters to take with them.

Key Concepts: Interdependence of plants and animals, interaction of organisms within an ecosystem, producers, consumers, decomposers, recycling

Wonders of Water (Grade 5; available Spring only)

The water cycle is the focus of this wet look at water. Students will explore the concepts of evaporation, condensation, precipitation and runoff, and conduct experiments to assess soil erosion and the value of plants in preventing erosion. Students will create their own mini-water cycle in a take-home terrarium.

Key Concepts: The water cycle, evaporation, condensation, precipitation, runoff, soil erosion, role of plants in preventing erosion, terrarium as model of water cycle

Program Scheduling and Fees Registration

Registration fees are due at time of registration and must be paid in full at least two weeks prior to the program. Confirmation packets, including Chaperone Guides and pre-visit materials will be mailed upon receipt of registration fees.

K-5 Guided School Programs

Scheduling: Guided programs last 1 1/2 hours, and can be scheduled Monday – Friday at either 9 – 10:30 a.m., or 10:30 a.m. – noon

Program Fees: \$125 per class

Chaperones: At least one adult chaperone required for every 10 children. Teachers/chaperones free up to a ratio of 1 teacher for every 5 students. Beyond a 1:5 ratio, a chaperone fee of \$6 per teacher/chaperone will be charged at admission/entry.



6500 South New Hope Road

Belmont, NC 28012

(704) 829-1252

www.DSBG.org

A Garden for all Seasons!

General Programs for All Ages

These programs feature *The Orchid Conservatory* and the Garden's fall exhibit, *Something's A-Flutter*. The programs are flexible, and designed to accommodate a wide range of grade levels and interests. Programs will be adapted to fit the interests and skill levels of your students—please specify a grade level or age range when registering.

Something's A-Flutter at the Garden: Butterfly Programs for School Groups

Available Sept. 4 - Oct. 16

(adaptable for all grades—please specify when registering)

Butterflies are some of nature's most beautiful insects, and the Garden's *Something's A-Flutter* exhibit provides a perfect place to see them. Students will review the characteristics of an insect and the fascinating life cycle process called metamorphosis. Students will experience butterflies up close and personal in *The Orchid Conservatory*, learn to identify several native species, and then learn more during a special Butterfly Walk through the Garden.

Key Concepts: *Insects, metamorphosis, life cycles, butterflies, butterfly behaviors, native Carolina butterflies*

*For additional insect-related programming, please see **Insect Exploration** on page 2. This engaging program supports curricular standards, offers a chance to work with live insects, and is offered throughout the year.*



Orchid Conservatory Programs

Available Oct. 19, 2009 – June 2010

The Garden's Orchid Conservatory presents an ideal environment for the study of tropical ecosystems and the plants that are specially adapted to live in them. Celebrate this wonderful resource for learning through a special visit with your students. The two programs described below are designed for flexible use across a range of grade levels, and can be adapted to suit younger or older grade levels—just let us know during registration.

Plants and People (Grades K-2)

Vanilla and chocolate are just two tropical plants that we commonly use. Explore the Garden and Orchid Conservatory to discover these and many other tropical plants that serve important uses as food, medicine or economic value. Afterward, each student will create their own tropical plant terrarium to take with them.

Tropical Ecosystems and Plant Adaptations (Grades 3-5)

Tropical ecosystems are fascinating! Using the Orchid Conservatory as a living laboratory, students will learn characteristics of a tropical environment and then conduct their own exploration to discover some of the unique ways tropical plants have adapted to survive and compete successfully. In addition, each student will create their own mini-terrarium and plant a tropical plant to take home with them.

Please note this program is well suited for advanced or secondary grade levels, as discussion of the ecosystems and the complexity of plant adaptations can vary widely.

Additional Opportunities



Holiday Lights at the Garden School Tree Gallery

Involve your students in a festive project that celebrates the holiday season while offering a variety of creative curricular connections! The *Holiday Lights* School Trees provide an ideal project for public or private schools as well as home school learners.

Holiday Lights at the Garden takes place Nov. 27 - Dec. 31, 2009. One of the special features each year is the series of School Trees that display ornaments and decorations created by area students. Select from one of six themes that best relates to your curricular needs and have your students create ornaments to be displayed at the Garden!

School Tree information and guidelines will be posted on the Garden's website in September 2009.



Self-Guided Programs

The Garden provides an ideal forum for self-guided studies, and we encourage you to bring your students for a self-styled visit. This is especially ideal if you are planning a specific focus, such as a creative writing or art workshop, and want to use the Garden as the setting. If you call in advance to schedule your program, you will receive the discounted rates listed below. Groups that arrive without advance registration will be charged the regular Garden admission rate for each student and adult.

Students	\$3 each
Adults/Chaperones	\$6 each

