



# Playcard Environmental Education Center

Loris SC 29569, Ph/Fax : 756-1277



Director, Ben Abercrombie: [babercrombie@horrycountyschools.net](mailto:babercrombie@horrycountyschools.net)

**Playcard Pre-visit Information Sheet Fifth Grade: Ecosystem Dynamics**

**Science Standards Addressed: 5<sup>th</sup> Grade Ecosystem Dynamics**

**Grade 5 Subject: Ecosystem Dynamics and Energy Flows**

**Ecosystem Dynamics:** Food webs, abiotic and biotic limiting factors, energy flow in organisms, soil erosion and weathering, human impacts on the environment, pollutants, sifting, flotation, succession, soil structures (horizons), biological and soil collections, human's impact upon ecosystems, etc. Earth's place in the universe, geosphere, atmosphere, hydrosphere, biosphere interactions. The amount of relative fresh water on the earth. Human solutions to environmental impacts on the earth, sustainability, invasive species, conservation. (5-LS 1.C, LS 1-1, LS 2.A, ESS 3.C).

**PROGRAM DESCRIPTION:** This program opens in the main center with students exploring wetland and upland topics using taxidermied mammals, wading birds and live species of reptiles and amphibians. Hands-on activities with animals will personalize the experience. As soon as the indoor activities are complete the students will explore the outdoors to investigate, sample, and experience a bottomland hardwood forest, a primary successional field, and a black-water beaver pond ecosystem with sampling equipment. They will collect a variety of biotic and abiotic samples including insects and their larva, crustaceans, plant species, and soil samples. The students will interpret their catch as "biological indicator" and draw conclusions about the "health" of the black water swamp, forest, and field ecosystems.

## VOCABULARY

(The following words will be used in your program. If possible, please investigate their definitions.)

[Wetlands](#)    [InvertebrateBiological Indicator](#)    [PlantCrustaceanFungusLarva](#)

[Vertebrate Succession](#)    [CarnivoreOmnivoreHerbivoreDecomposerBiodiversityPhotosynthesis](#)

**Educational Apps** and extensions free download to apple or android systemba

[Inaturalist](#) – Documents and shares species with online mapping.

[Ebird](#)- Cornell University birding app used to map species and complete scientific checklist of local birds.

**CONCEPTS TO DISCUSS AND EXPLORE WITH STUDENTS BEFORE VISIT** Ecology of Wetlands, Fallow Fields, and Forests Plants and Animals as Biological Indicators. Venomous vs. Non-venomous species.

Online Resources [Virtual Tours of South Carolina Ecosystems on Nature Scene](#)

[Knowitall.org](#) searchable online real-time education database linked to state curriculum standards

[Nature cat Swamp Episode SCETV](#)

Nature Notes with Rudy Mancke [Butterflies and Natural Connections](#) and [Dragonflies](#)

Ben Abercrombie [Forever Wild Venomous Snakes of SC Episode](#)

Ben Abercrombie [Forever Wild! Beaver Pond Wetlands Episode](#)

Ben Abercrombie [A River Runs Through It Waccamaw River Ecology With the Waccamaw Riverkeeper](#)

Nature Notes with Rudy Mancke [Carnivorous Plants](#)

Nature Notes with Rudy Mancke [River Otter](#)

Nature Notes with Rudy Mancke [Vultures](#)

### **Preparing for your Visit**

1. Please encourage students to wear clothing appropriate for the weather conditions, closed-toed shoes, and be ready to explore nature with all their senses.
2. CHAPERONES: Students should have 1 adult for every 5 students. This is not a requirement, but does add to the program significantly.
3. Please bring ONE 1 GALLON SIZED ZIPLOCK BAG PER STUDENT for collections.
4. (Optional) Download on digital devices or at least one device per class (can be teacher's cell phone or another phone in the group) copies of the inaturalist app and register the user.

### **Post Visit Activity:**

As an assessment, each grade level is encouraged to create a learning, "feedback" project. These projects may be any appropriate feedback method as prescribed by the teacher. Some examples are, letters of what the students learned with drawings and/or photographs of the experience, power point presentations, videos, learning logs, journals, projects (i.e. a leaf collection, copy of presentation, video sharing, testimonial, etc.)

### **Alternative Assessment and Extension (optional):**

Download the [inaturalist](#) app onto digital devices and utilize devices to photograph and survey species found around the participant's base school or home outdoors. GPS coordinates can be taken of species and uploaded to create an online species map for your school or home. This way students can participate in direct citizen science data collection.

Research can then be performed on the students' favorite species that they found to study the interrelationships between the organisms and their local habitats to create a food web describing the local ecosystem.

**Possible focus questions for school research (optional):** "Who eats who?" What habitats do the species inhabit? How do plants produce food? Why are fungi important to trees? Are snakes vertebrates or invertebrates? How do you tell a venomous from a non-venomous snake in SC? Are SC salamanders reptiles or amphibians and what do they eat? Why are decomposers and scavengers like turkey vultures important to ecosystems? Why are mosquito fish important to the ecosystem and what animal do they help to control in nature? Why are beaver pond wetlands important to ecosystems? What functions do they serve and why are they beneficial? Why is biodiversity important in an ecosystem and does high biodiversity mean a stronger or weaker ecosystem?