



Playcard Environmental Education Center Pre-visit Information Sheet

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Seventh Grade: Ecosystem Health

7th Ecosystem Health and Human Impacts

Science Standards Addressed

Determining Ecosystem Health and Human Impacts: Determining the health of local ecosystems relative to natural biodiversity, index of biotic integrity studies, synthetic impacts on environments, potential vs kinetic energy, energy flow through ecosystems. Limiting factors, competition for resources vs population level. Biological relationships. Humans impact over time. (ESS2.A, 2.C ESS3.C, 3.4, 3.D, LS4.C)

PROGRAM DESCRIPTION:

Students will receive first-hand experiences observing how the biotic (living) community is directly affected by the abiotic (non-living) community through energy flow. The students, working in teams, will explore the environments of Playcard through the use of sampling equipment to discover why certain plants and animals grow in some areas and not in others by hands-on exploration. They will collect and observe a variety of biotic and abiotic components of habitats including soil samples, insects and their larva, vertebrate, invertebrate, fungi, and plant species. The students will learn human impacts, conservation techniques, and the importance of natural preservation. Time will be shared between field and lab activities.

TOPICS and VOCABULARY (The following topics and words will be used in your program. If possible, please investigate the word's definitions and research the topics.)

Biodiversity	Sand (Particle size)	Clay (Particle Size)	Soil horizons	Humus
Silt (Particle size)	Duff	Percolation Test	Kaolinite	Parent Material
Wind Erosion	Water Erosion	Soil Leeching	Accretion	Soil Deposition
Xeric Soil	Mesic Soil	Hydric Soil	Fossil	Photosynthesis

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?