

# YOUR SCHOOL'S NEXT OUTDOOR FIELD STUDY IS ONLY A **STEP AWAY!**

April 15, 2016

Dear Teachers,

Select from a variety of exciting hands-on programs for your students for the 2016-2017 school year that are environmentally focused, grade specific, inquiry-based and aligned to state standards. A STEP visit includes three 45-60 minute activities addressing the chosen program topic. Those activities will include a lab study, a field study and a hike (unless otherwise stated) with a half hour for a picnic lunch. You must provide your own lunches and drinks at both locations. A typical schedule is 9:15 AM – 1 PM. Shorter visits can be accommodated. The Science and Technology Enrichment Program (STEP) is a cooperative effort between Savannah River Nuclear Solutions, Silver Bluff Audubon Center, and the Ruth Patrick Science Education Center. Two field trip locations for STEP include the Savannah River Site and the Silver Bluff Audubon Center. Both sites have indoor classrooms, beautiful forests with miles of trails, lovely ponds and a variety of resident wildlife.

Please contact me for more information or for any questions you may have. See you in the forest!

Thank you!  
Susanne

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## **Kindergarten (Silver Bluff Audubon Center Only)**

- **Program Theme: Audubon Jr. Explorers**

**Lab Study: Come To Your Senses**

**Field Study: Our Leafy Friends**

**Eco-Hike: Explorers' Hike**

Students will make observations of taxidermy animals using their senses and simple tools. A hands-on classifying activity will focus on plant parts, and crawling through a soil tunnel students will see what grows underground. After examining a germinating plant seed, they will plant some seeds to take home. An eco-hike will involve an exploration of the natural world looking for clues that animals live at the Silver Bluff Audubon Center. *SC Science Performance Indicators: K.L.2A.1, K.L.2A.5, K.L.2A.6*

## **1<sup>st</sup> Grade (Silver Bluff Audubon Center Only)**

- **Program Theme: Dirt on Dirt**

**Lab Study: Claytastrophe**

**Field Study: Into the Pit**

**Eco-Hike: Dirt Everywhere or Young Archaeologists**

What is better than digging in the dirt? In this program, students will learn just how important soil is to all of us! Through simple experimentation with different soils, students will practice observation, investigation, and classification skills. Building on these skills in the field, students will use a variety of tools to discover different earth materials that make up what we call *dirt*. A hike in the forest will get students up close with plants that survive in the soil of the forest. A possible third session could be archaeology with Dr. Chris Moore. *SC Science Performance Indicators: 1.E.4A.1*

- **Program Theme: Green with Envy**

**Lab Study: Plant Parts**

**Field Study: Cycling Plants**

**Eco-Hike: Plant Cycle Hike**

Students will dive head long into all that is green and blooming! Through observation, investigation, and experimentation, students will gain a better understanding of the structures, functions, and life cycles of plants. This will be followed by an "adoption" of their very own tree! Students will classify plant parts and crawl through a soil tunnel to see what may be growing underground. An eco-hike in the forest will get students up close with the life cycles of many plants. *SC Science Performance Indicator: 1.L.5A.1, 1.L.5A.2, 1.L.5B.1*

## 2<sup>nd</sup> Grade (Silver Bluff Audubon Center Only)

- **Program Theme: Feathered Friends**

**Lab Study: Feathered Taxidermy**

**Field Study: Fantastic Beaks**

**Eco-Hike: Young Birders' Hike**

Students will enter the fantastic world of our feathered friends found right here in their own backyards! Through careful observations of taxidermy birds, students will infer behavior, diet and habitat according to their physical characteristics. Next, students will become different birds to investigate the necessity of this diversity. This wildlife adventure will conclude with students going where the birds go; becoming animal detectives hunting for birds and the clues they leave in the forest. *SC Science Performance Indicator: 2.L.5B.2*

- **Program Theme: Cycling Through Life**

**Lab Study: Taxidermy Critters**

**Field Study: Life Cycle Scavenger Hunt**

**Eco-Hike: Life Cycle Hike**

Through careful observation of taxidermy mammals and birds, students will hypothesize how they can survive throughout their life. Students will discover how living things amazingly cycle through life beginning with a scavenger hunt of life cycle models, and collaborate on a hands-on classifying and sequencing activity to determine the life cycle of an organism. A life cycle hike and scavenger hunt will enhance their understanding and appreciation for the uniqueness of each organism's life journey! *SC Science Performance Indicator: 2.L.5A.2*

## **3<sup>rd</sup> Grade (SRS or Silver Bluff Audubon Center)**

- **Program Theme: Eco-Venture(Silver Bluff Audubon Only)**

**Field Study: Wild Words, Hidden In Plain Sight**

**Field Study: Wet Wonders**

**Eco-Hike: Eco Adventure**

Join us on an extended eco-hike adventure, participating in standards-based STEAM environmental activities including observations of terrestrial and aquatic ecosystems along the way. The hike covers 2 miles and will take about 2 ½ hours. Along the way students will make careful observations of their environment looking for critters hidden in plain sight, discovering the wonders of a wetland, and using wild words to describe their surroundings. Participants should wear long pants and closed-toe walking shoes. *SC Science Performance Indicator: 3.L.5A.1, 3.L.5A.2, 3.L.5B.1, Math:3.MDA.5, 3.MDA.6*

- **Program Theme: Earth Beneath Our Feet**

**Lab Study: Soil Critters**

**Field Study: Dirty Hands' Investigations**

**Eco-Hike or Archaeology Adventure**

There is so much going on just below our feet! Students will go on an underground adventure exploring the varieties and functions of soils. Following an experimental session at our soil pit, students will investigate the soil critters that play a vital role as nature's recyclers. An archaeology adventure is available at Silver Bluff Audubon Center with Dr. Chris Moore. An Eco-hike is available at either site discovering the wonderful world beneath our feet. *SC Science Performance Indicator: 3.E.4A, Math: 3.MD.4, 3.MD.8, Social Studies: standard 3-2*

## 4<sup>th</sup> Grade (SRS or Silver Bluff Audubon Center)

### ▪ **Program Theme: Birds Alive!**

**Lab Study: Bird Taxonomy**

**Field Study: Operation: Bird Survival**

**Eco-Hike: Ornithology Hike**

Have you ever thought about how birds survive around the world? Students will first make careful observations of taxidermy birds looking for ways that each animal can defend itself, move, obtain food, and camouflage from predators. A scavenger hunt of local birds and the clues they leave behind is a real adventure. After a simulated game of survival in a natural disaster, students will have a better appreciation of the challenges presented by an intricate and dynamic environment of our feathered friends! *SC Science Performance Indicator: 4.L.5B.3*

### ▪ **Program Theme: Dazzling Diversity**

**Lab Study: Animal Taxonomy**

**Field Study: Animal Detectives**

**Eco-Hike: Diversity Hike**

Students will immerse themselves into the dazzling diversity of organisms that live in their own backyard! Close-up investigations of native taxidermy and live animals will allow for observation, hypothesis and inference of just how each critter is adapted to its individual habitat. Students will then become nature explorers searching for a wide diversity of animals and their clues in the forest. *SC Science Performance Indicator: 4.L.5B.2, 4.L.5B.3*

### ▪ **Program Theme: Water Dance**

**Lab Study: Cycling Through the Water Cycle**

**Field Study: Pond Investigators**

**Eco-Hike: Water, Water, Everywhere!**

Students will investigate the water cycle and the role it plays on earth. Students will be immersed in the movement of water through simulation activities. Also, students will determine water quality through macro-invertebrate collection at a pond on site. Finally, students will hike to observe ways that organisms obtain water and just where it can be found in the environment. *SC Science Performance Indicator: 4.E.2A.2*

## 5<sup>th</sup> Grade (SRS or Silver Bluff Audubon Center)

- **Program Theme: Eco-Venture (Silver Bluff Audubon Center only)**

**Field Study: Wild Words, Hidden In Plain Sight**

**Field Study: Wet Wonders**

**Eco-Hike: Eco Adventure**

Join us on an extended eco-hike adventure, participating in standards-based STEAM environmental activities including observations of biotic and abiotic factors of aquatic and terrestrial ecosystems that affect the balance of nature. The hike covers 2 miles and will take about 2 ½ hours. Participants should wear long pants and closed-toe walking shoes. *SC Science Performance Indicator: 5.L.4A.1, 5.L.4A.2, 5.L.4B.2, 5.L.4B.3, 5.L.4B.4*

- **Program Theme: Water, Water Everywhere**

**Lab Study: Wonderful Watersheds**

**Field Study: Pond Investigators**

**Eco-Hike: Ecosystem Explorers**

Students will investigate the wonderful world of water through macro-invertebrate collection of aquatic ecosystems. In addition, watershed modeling and problem-solving will enhance student understanding of the land-water-human connection. Finally, students will compare aquatic and terrestrial ecosystems through observations made on an eco-hike. *SC Science Performance Indicators: 5.E.3A.1, 5.L.4A.1*

## 6<sup>th</sup> Grade (SRS or Silver Bluff Audubon Center)

### ▪ **Program Theme: Sparrow and the Woodpecker**

**Lab Study: Taxidermy Adaptations**

**Field Study: Operation Bird Survival**

**Eco-Hike: Habitat Assessment Hike**

Students will explore the challenges of avian survival. Through observation, inference and use of a dichotomous key, students will use taxidermy birds to investigate adaptations that allow for success of birds in diverse and changing environments. Students will engage in a game of survival to see if they have what it takes to endure a natural disaster! Finally, students will hike the area to investigate the habitat challenges and formulate strategies to help protect some of our most endangered native birds. *SC Science Performance Indicator: 6.L.4B.2*

### ▪ **Program Theme: Roots and Shoots**

**Lab Study: Leaf Me Alone**

**Field Study: Gee, I'm A Tree**

**Eco-Hike: Explorer Hike**

In this STEM program, students will investigate the roots, shoots and all other structures that allow success in the plant world. Through creation and use of dichotomous keys, students will gain a better understanding of the great diversity of plants and clever modes of seed dispersal. Also, students will discover the geometry behind a forester's field technology tools. Finally, students will hike to observe examples of tropisms and classify species within the plant kingdom. *SC Science Performance Indicators: 6.L.5B.3; SC Math Standards: 6.EE.6, 6.NS.5*

## 7<sup>th</sup> Grade (SRS or Silver Bluff Audubon Center)

### ▪ **Program Theme: Survivor!**

**Lab Study: Advanced Operation Survive**

**Field Study: Biological Aquatic Investigation**

**Eco-Hike: Forest Health Hike**

Students will determine the quality of an aquatic ecosystem through observations, macro-invertebrate collection and data recording at a pond site. Also, they will participate in a simulation of population fluctuation during a natural hazard. Finally, students will collect data as they hike to determine the health of the forest. *SC Science Performance Indicator: 7.EC.5A.1, 7.ECC.5A.3, 7.EC.5B.3*

### ▪ **Program Theme: Diggin' the Dirt**

**Lab Study: Permeability Investigation**

**Field Study: Soil Scientists in the Field**

**Archaeology/Eco-hike**

Time to get our hands dirty! Students will investigate quality of soil through use of tests and tools in both our soil pit and our soils lab. Through these hands-on, minds-on activities, a better understanding will be gained of the importance of healthy soil to plants, animals and all living things in our ecosystem. A possible third session may be done at Silver Bluff – archaeology with Dr. Chris Moore. *SC Science Performance Indicator: 7.EC.5A.2, CCSS Math: 7.G.6, Social Studies Literacy Skills for the 21<sup>st</sup> Century: Explain change and continuity over time and across cultures.*

## 8<sup>th</sup> Grade (SRS or Silver Bluff Audubon Center)

- **Program Theme: Hunger Games**

**Lab Study: Watershed Modeling**

**Field Study: Fit To Survive**

**Eco-hike/Advanced Archaeology**

Students will investigate how weathering, erosion, and deposition affect water quality within a watershed. They will also consider how pollutants enter the waterways. Through observation of taxidermy birds and a simulated survival game, students will have a better understanding of the process of natural selection. Finally, students will find real life examples of these concepts on an eco-hike. Teachers may request an archeology program with Dr. Chris Moore, professional archaeologist, instead of the Eco-hike at Silver Bluff Audubon Center! *SC Science Performance Indicator: 8.E.5A.1, 8.E.5A.2, 8.E.6B.1, 8.E.6B.2*

## 9<sup>th</sup>-12<sup>th</sup> Grade (SRS or Silver Bluff Audubon Center)

- **Program Theme: It's a Tough World!**

**Lab Study: Advanced Taxidermy Studies**

**Field Study: Survival of the Fittest Challenge**

**Eco-Hike: Advanced Habitat Assessment**

Through a game of survival and interaction with taxidermy animals using a dichotomous key, students will investigate adaptations that allow for survival of the individual and the stability of the species. Finally, students will investigate, record data and conclude upon the health of forest soil and its inhabitants with an eco-hike and soil testing. *SC Science Performance Indicator: H.B.6.A, H.B.6D.1*

- **Program Theme: A Wet World**

**Lab Study: Advanced Watershed Modeling**

**Field Study: Advanced Biological/Chemical Aquatic Assessment**

**Eco-Hike: Diversity Hike**

On our blue planet, humans play a vital role in the protection and preservation of our watery resources. Students will learn more about these effects through experimenting with human behaviors that influences the location, quality and quantity of water within a watershed. Chemical and biological analysis will reveal the quality of a local pond. A hike will allow students to collaborate to determine the diversity of a local forest ecosystem. *SC Science Performance Indicator: H.B.6.A1*

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