SOUTH CAROLINA

2019-2020 Fieldtrip Directory

Standards Based Discovery and Planetarium Programs in Science, Technology, Engineering, Mathematics, and Social Studies

Registration Deadline is June 5, 2019
Dear Educators,

The Ruth Patrick Science Education Center (RPSEC) is a unique cooperative effort by the University of South Carolina Aiken, local industry, and public-school districts in the Central Savannah River Area. The purpose of our collaboration is to enhance the Science, Technology, Engineering and Mathematics (STEM) education experience in the elementary, middle and high schools within the CSRA.

Our hands-on approach to teaching is designed to help students experience the beauty, the order and the power of science and mathematics, as well as explore the interest and fun of discovery. A visit to the RPSEC enables students, teachers and the public to experience science and mathematics in a challenging yet exciting way! We know our unique facility will provide a fieldtrip experience that will not be forgotten, as we are inspired to infuse a love for learning science, mathematics, and technology.

Please visit our website http://rpsec.usca.edu/student/ to schedule your Ruth Patrick Science Education Center experience today!

Kelly Schepens
Director of Student Programs
REQUEST A FIELD TRIP
The Ruth Patrick Science Education Center offers more than 50 different hands-on, inquiry-based K-12 student programs that are aligned to state standards. Different programs are offered each month. A calendar of offerings, program descriptions, and reservation request forms can be found on our website at: http://rpsec.usca.edu/student/. Offerings for the upcoming school year are posted online in mid-April. The deadline to submit reservation requests is early June. Reservation requests for student programs are submitted online via the reservation link provided. Both the RPSEC and you will receive a copy of your request via e-mail after submission. Requests received after the deadline will be placed on a waiting list. No reservations will be accepted by telephone, fax or mail.

CONFIRM YOUR FIELD TRIP
All scheduling for the upcoming school year is done in the summer. You will be notified via e-mail that your request has been received. Once your visit has been scheduled, you will be e-mailed a confirmation contract letter. Confirmation contract letters MUST be accepted via e-mail reply to the RPSEC by the date specified, or your scheduled program(s) will be cancelled and filled from the waiting list.

RESCHEDULING A VISIT
Because we receive many more requests than we can serve, it is highly unlikely that we will be able to reschedule a visit unless we have a cancellation.

CANCELLATIONS
If you need to cancel a visit, we must receive written notification at least FOUR weeks in advance so we can fill it from our wait list. Written notification of a cancellation MUST be received at least 4 weeks prior to the reserved date or a $25.00 cancellation fee PER PROGRAM will be assessed. Groups from that school will not be permitted to visit the RPSEC until the fee has been paid. *NOTE: An additional $10.00 PER PROGRAM will be assessed if your group misses your scheduled visit without contacting the RPSEC prior to the start time.

SCHEDULING RESTRICTIONS
- There is a minimum of 10 students to schedule any program.
- There is a maximum of 30 students per Discovery Program.
- There is a maximum of 60 students per visit for a Double Group (students rotate through 2 programs).
- There is a maximum of 90 students for a Triple Group (students rotate through 3 programs).
- Please do not bring more than 90 students on the same day unless special arrangements have been made in advance and confirmed in writing.
SINGLE, DOUBLE, and TRIPLE GROUPS

• Teachers bringing 10 to 30 students may select one, two, or three programs per visit. A group of this size is considered a “Single Group” whether attending one or multiple programs.

• Teachers bringing 31 to 60 students must select at least two (2) programs for a “Double Program” visit. Students will rotate through two programs, with a visit of approximately 3 hours (includes a 30 minute lunch). Choose programs that are offered in the same month, only one of which may be a planetarium program.

• Teachers bringing 61 to 90 students should schedule three (3) programs for a “Triple Program” visit. Students will rotate through three programs, with a visit of approximately 4 hours (includes a 30 minute lunch).

• When choosing multiple programs, please select programs that are offered in the same month. Only one of the programs can be a planetarium program.

• EcoHikes in the woods and STEP classes at Audubon or SRS cannot be combined with RPSEC programs on the same day. However, teachers may request RPSEC programs and STEP visits during the same year.

• We may be able to accommodate larger groups in a shorter time frame if special arrangements are made in advance. Instructions for larger groups can be found at: http://rpsec.usca.edu/student/ExpandedDoubleTriple.pdf

PROGRAM REQUEST GUIDELINES

• Each class may request 2 visits per school year. You will be placed on our waitlist for a possible second visit. Please prioritize your program requests. We will schedule your programs, subject to availability, in the order in which you list them on your reservation request form.

• We recommend that one teacher make a reservation request for the entire grade level. We can accommodate up to 90 students per day (typically 9:15 AM – 1:15 PM) unless special arrangements are made in advance.

• Programs are 60 minutes each unless stated otherwise. Please allow for transition time between programs.

• Due to the anticipated volume of program requests, it is highly unlikely that late requests will be filled.

PROGRAM START TIMES

Programs begin at 9:15 AM, 10:30 AM, 12:00 noon, and 1:15 PM. Most groups eat lunch from 11:30 – 12:00. Program start times can be adjusted in advance upon request.

ARRIVALS and DEPARTURES

Please take a headcount before you enter the RPSEC. The group leader should report to the main office upon arrival with the total number of students and adults. Groups should enter through the double door entrance. Line up your students in one, two or three even groups in the gallery (maximum of 30 students per group). Please make checks payable to USCA, or let us know that you need to be invoiced. Please notify us as soon as possible if you will not be able to arrive at your assigned time or if you will need to leave early (803-641-3313).

LUNCH FACILITIES

Lunch facilities at the RPSEC can accommodate up to 90 students, but you must reserve the lunchroom, extra classrooms or picnic tables prior to your visit on a first come, first served basis. Participants should bring bag lunches and drinks. The RPSEC does not have food available. IMPORTANT: Double and triple groups should pre-divide their lunches to eat in two or three separate rooms.

CHAPERONES

Adult chaperones are welcome and encouraged to attend. Please note:

• ONE adult per 8 students will be given free admission to planetarium programs. Adults exceeding this maximum will be charged a special admission price of $3.75 each. All teachers, school staff, bus drivers and parents are considered as part of the “adult” count.

• There is no charge for adults attending discovery programs (non-planetarium).

• To limit distractions to learning, children under the age of 4 are not permitted to attend any student programs at the RPSEC, including the planetarium.

• All visitors should turn off cell phones and audible personal electronic devices during their visit.
STUDENT PROGRAM FEES

Discovery Programs
Aiken County Public Schools.............................................. Prepaid by the district (non-planetarium)
All Other Schools............................................................... $3.75 per student, per program

Planetarium Programs
All Students ........................................................................... $3.75 per student, per program
Adults: One adult per eight students is admitted free. Additional adults pay $3.75 each. (Adults = teachers, school staff, bus drivers and chaperones)

All Programs
Cancellation Fee (less than 4 weeks written notice), PER PROGRAM........$25.00
No-Show Fee, PER PROGRAM ......................................................$35.00

ACADEMIC STANDARDS
All student programs are aligned with South Carolina and Georgia academic standards. Each lesson is designed to actively engage students in hands-on, inquiry-based learning, and many of our programs are interdisciplinary. South Carolina and Georgia academic standards correlations are available on our website: http://rpsec.usca.edu/student/.

ADA STATEMENT
Please indicate if you need any special services, assistance, or accommodations to participate in our programs by contacting us in advance at RPSEC@usca.edu or (803) 641-3313.

CONTACT INFORMATION
Ruth Patrick Science Education Center
University of South Carolina Aiken, 471 University Parkway, Box 3, Aiken, SC 29801
Telephone: 803-641-3313
Fax: 803-641-3615
E-mail: RPSEC@usca.edu
Discovery and Planetarium Programs are **NOT** offered every month. Please see the calendar below along with program descriptions for **MONTHLY** offerings. When planning your visit, please select programs offered in the **same month**.

### 2019-2020 South Carolina Elementary Level Student Programs Calendar

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<th>KINDERGARTEN</th>
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<th>SECOND GRADE</th>
<th>THIRD GRADE</th>
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<th>FIFTH GRADE</th>
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<td><strong>NOVEMBER</strong></td>
<td><em>The Weather Animals with Backbones Magnets &amp; Motions Push Me, Pull Me</em></td>
<td><em>Habitat Earth Marvelous Minerals Merry Measuring Planet Earth Rocks</em></td>
<td><em>Magic Treehouse Kinesthetic Astronomy Lunar Design Challenge</em></td>
<td><em>Defying Gravity Polygon Puzzle Ravenous Raptors Under the Sea</em></td>
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<td><strong>DECEMBER</strong></td>
<td><em>In My Backyard Exploring Our Senses Insect Inspectors</em></td>
<td><em>Habitat Earth Circuit City Multiplication Madness Owls: Wise Guise</em></td>
<td><em>Magic Treehouse Vertebrate Taxonomy Walk Across Solar System</em></td>
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<td><em>In My Backyard All Sorts of Sorting Turtle Talk</em></td>
<td><em>One World, One Sky Dig It! Plantastic Recycling Resources</em></td>
<td><em>Habitat Earth Circuit City Multiplication Madness Owls: Wise Guise</em></td>
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<td><em>The Weather Staying Alive! What’s the Matter?</em></td>
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* Indicates a Planetarium Program (you may only select **ONE** planetarium show per visit)

** Indicates an Ecohike (these hikes are a stand alone program offered off-site at Hitchcock Woods)
Kindergarten
South Carolina Programs

MONTHLY PROGRAM PAIRINGS

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<th>JANUARY &amp; FEBRUARY</th>
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PLANETARIUM PROGRAMS

IN MY BACKYARD  Months offered: JANUARY, FEBRUARY, APRIL, MAY
Join Fred Penner from TV's Nickelodeon as he explores his backyard searching for both things large and small. We will also learn about the reason for seasons, colors in the rainbow and even count together. This show is geared towards the youngest stargazers and encourages exploring your own backyard with fun songs and audience participation! Standards: K.L.2A.6, K.E.3A.3

DISCOVERY PROGRAMS

ALL SORTS OF SORTING  Months offered: APRIL & MAY
Classify all sorts of objects by observing similar properties in this hands-on, discovery program. Students will describe and sort a variety of items using one or more attributes including size, shape, color, pattern, and texture. Standards: K.L.4A.1, K.L.4A.2

EXPLORING OUR SENSES  Months offered: JANUARY & FEBRUARY
What do our five senses tell you about the world around us? Let’s find out as we explore all of our senses with fun, cooperative sensory activities. Test your eyes with optical illusions, listen for mystery sounds, explore touch with unknown objects, sniff out every day smells and use your taste buds to guess the flavor of different jellybeans. Standards: K.P.2A.4

INSECT INSPECTORS  Months offered: JANUARY & FEBRUARY
Students will learn about the major body parts of insects, observe live insects and test different insect “mouth parts” at feeding stations. Standards: K.L.2A.1, K.L.2A.3

TURTLE TALK  Months offered: APRIL & MAY
Let’s talk turtles and learn all about the needs of these unique vertebrates. We will explore how land tortoises and aquatic turtles are alike and different and participate in hands-on turtle stations. Students will observe live box turtles, aquatic sliders and a snapping turtle. Standards: K.L.2A.1, K.L.2A.3, K.L.2A.5, K.L.2A.6
First Grade
South Carolina Programs

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<td>*One World, One Sky</td>
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<td>Kid Pix</td>
<td>Plantastic</td>
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<tr>
<td>Sun &amp; Shadows</td>
<td>Dig In!</td>
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<td>Recycling Resources</td>
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PLANETARIUM PROGRAMS

ONE WORLD, ONE SKY  Months offered: SEPTEMBER, OCTOBER, MARCH, APRIL & MAY
Learn about the night sky with the cast from Sesame Street. Join Big Bird, Elmo and their friend from China, Hu Hu Zhu, on a journey to discover what it means to share one sky as we learn about the Big Dipper, the North Star, the Sun and the Moon. Standards: 1.E.3A.1, 1.E.3A.2, 1.E.3A.3

DISCOVERY PROGRAMS

DIG IN!  Months offered: MARCH, APRIL & MAY
Students will examine, compare, and sort Earth materials. Using magnifiers they will investigate and describe properties of minerals, rocks, sediments and soil. Standards: 1.E.4A.2, 1.E.4B.1, 1.E.4B.2

KIDPIX  Months offered: SEPTEMBER & OCTOBER
Get your creative juices flowing as we explore “KidPix” in our Mac computer lab classroom. Students will make art, math and science connections as they use the KidPix toolbox to draw lines, shapes, colors, and patterns as well as dipping into the paint bucket, paintbrush, stamps and eraser tools. Standards: 1.S.1A.5, 1.S.1A.6, Mathematics 1.G.1, 1.G.4

SUN AND SHADOWS  Months offered: SEPTEMBER & OCTOBER
Students will conduct investigations that help them discover how the Sun appears to move, how shadows change over time, and how the angle at which light shines changes the brightness and spread of the light. Standards: 1.E.3A.1, 1.E.3A.3, 1.E.3A.4, 1.P.2A.1, 1.P.2A.2, 1.P.2A.3, 1.P.2A.4

RECYCLING RESOURCES  Months offered: MARCH, APRIL & MAY
Students will investigate ways to help reduce, reuse and recycle our waste. They will work together to deconstruct a model landfill, collect data and build graphs to analyze the effects of our trash in the environment! Standards: 1.S.1A.2, 1.E.4B.1, 1.E.4B.2

PLANTASTIC  Months offered: MARCH, APRIL & MAY
Students will identify the functions of plant parts, observe live plants and assemble plant life cycle puzzles. They will enjoy time-lapse videos of plants in motion and discuss how plants and people are alike and different. They will sort and observe seeds and investigate methods of seed dispersal with seed dispersal stations. Standards: 1.L.5A.1, 1.L.5A.2, 1.L.5B.1, 1.L.5B.2, 1.5B.3

Ruth Patrick Science Education Center – Student Programs 2019-2020
MONTHLY PROGRAM PAIRINGS

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**PLANETARIUM PROGRAMS**

**THE WEATHER** Months offered: SEPTEMBER, OCTOBER, NOVEMBER, APRIL & MAY
Join us on a journey to connect children to the weather around them and encourage them to use their senses to observe weather. Learn basic cloud types, their association with specific weather conditions, and the concept of weather forecasting. *The Weather* introduces basic terms used to describe weather conditions, and the instruments used to study and measure weather. Children follow a drop of water through the entire water cycle. Standards: 2.E.2A.1, 2.E.2A.2, 2.E.2A.3, 2.E.2A.4

**DISCOVERY PROGRAMS**

**ANIMALS WITH BACKBONES** Months offered: SEPTEMBER, OCTOBER & NOVEMBER
We will classify fish, amphibians, reptiles, birds, and mammals according to their physical characteristics. Students will observe live animals including salamanders, frogs, turtles, snakes, an alligator and an owl. Standards: 2.L.5A.1, 2.L.5A.2, 2.L.5A.3, 2.L.5B.1

**MAGNETS AND MOTIONS** Months offered: SEPTEMBER, OCTOBER & NOVEMBER
Students will predict, sort, test and classify objects as magnetic or non-magnetic. Using toys and fun hands-on activities, students will investigate properties of magnetism and demonstrate how the poles of magnets attract and repel. Standards: 2.P.3B.1, 2.P.3B.2, 2.P.3B.3

**PUSH ME, PULL ME** Months offered: SEPTEMBER, OCTOBER & NOVEMBER
Students will experiment with force and motion using toys including marble towers, gears, ramps and dominoes. They will collect, analyze, and interpret data from observations and measurements as they investigate motion, gravity and friction. Standards: 2.P.4A.1, 2.P.4A.2, 2.P.4A.3, 2.P.4A.4

**STAYING ALIVE!** Months offered: APRIL & MAY
What adaptations help animals to stay alive in their habitat? Students will answer this question as we observe live animals including an owl, alligator, turtle, frog and salamander and learn all about animal adaptations by participating in hands-on stations. Standards: 2.L.5A.1, 2.L.5A.2, 2.L.5B.2, 2.L.5B.3

**WHAT’S THE MATTER?** Months offered: APRIL & MAY
Students will investigate three states of matter: solid, liquid, and gas. They will observe, describe, and compare physical properties of solids and liquids. They will also explore mixtures and solutions. Standards: 2.P.3A.1, 2.P.3A.2, 2.P.3A.3
### Third Grade
South Carolina Programs

#### MONTHLY PROGRAM PAIRINGS

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#### PLANETARIUM PROGRAMS

**HABITAT EARTH**  
*Months offered: DECEMBER, JANUARY, FEBRUARY & MARCH*

Dive below the ocean’s surface and travel beneath the forest floor to explore how living organisms are interconnected to support life forms both large and small. From the tiniest microbe to the tallest tree, *Habitat Earth* utilizes stunning images to show students how the biological world is carefully intersected with human and ecological networks.

Standards: 3.L.5A.1, 3.L5A.2, 3.L.5B.1, 3.L.5B.2

#### DISCOVERY PROGRAMS

**CIRCUIT CITY**  
*Months offered: FEBRUARY & MARCH*

Students will utilize batteries, light bulbs, wires, and motorized fans to construct multiple circuits. They will explore the difference between simple and series circuits along with the effect of switches. Standards: 3.P.3A.1, 3.P.3A.2, 3.P.3A.3

**MARVELOUS MINERALS**  
*Months offered: DECEMBER & JANUARY*

Working together in small groups, students handle mineral specimens such as malachite, amethyst, mica, pyrite and copper. They learn to identify common minerals on the basis of their properties using a field guide and minerals identification key. Standards: 3.E.4A.1, 3.E.4A.3

**MERRY MEASURING**  
*Months offered: DECEMBER & JANUARY*

Students use Earth materials to investigate volume and mass. They will engage in problem solving activities such as estimating, measuring and ordering the masses of different minerals. We will explore the difference between mass and weight as well as learn how and why their weight changes if we leave Earth. Standards: 3.S.1A.1, 3.S.1A.3, 3.S.1A.4, 3.S.1A.5, Mathematics 3.MDA.2

**MULTIPLICATION MADNESS**  
*Months offered: FEBRUARY & MARCH*

Join us in our computer lab to dive into all things multiplication. This program introduces and extends students’ multiplication skills through building arrays, easy to use strategies and multiplication games. Finally, students will test their new multiplication knowledge on the computer with flash cards with a techno twist! Standards: Mathematics 3.ATO.1, 3ATO.7

**OWLS: WISE GUISE**  
*Months offered: FEBRUARY & MARCH*

Silent flight, a curved beak and sharp talons are some of the owl's guise that enables these birds to be successful predators. We will explore four owls native to our area, interact with live owls and dissect owl pellets. Standards: 3.L.5A.1, 3.L5A.2, 3.L.5B.2
PLANT EARTH ROCKS  Months offered: DECEMBER & JANUARY
Students will explore excellent specimens of igneous, sedimentary and metamorphic rocks. They will compare physical properties relating properties to formation processes as well as observe and classify fossils, sediments and products of earth resources. Standards: 3.E.4A.1, 3.E.4A.3

ECOHIKE IN HITCHCOCK WOODS  Months offered: SEPTEMBER, OCTOBER, APRIL & MAY
This is a two-hour, two-mile guided hike through Hitchcock Woods. Native plants will be identified, evidence of animal life will be examined, and forest communities will be compared. Standards: 3.L.5A.1, 3.L.5A.2, 3.L.5B.1, 3.L.5B.2
**MONTHLY PROGRAM PAIRINGS**

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**PLANETARIUM PROGRAMS**

**MAGIC TREEHOUSE: SPACE MISSION**  
*Months offered: NOVEMBER, DECEMBER, MARCH & APRIL*  
Travel with brother-sister duo, Jack and Annie, in their Magic Tree House as they discover a note that asks them to answer six questions about space. With the help of an astronomer, the Internet, an astronaut, books and the writer of the mysterious note, we go on a wonderful journey of adventure and learning. This beautifully produced show is based on the beloved Magic Treehouse book series. Standards: 4.E.3A.1, 4.E.3B.1, 4.E.3B.2, 4.E.3B.3, 4.E.3B.4

**TWO SMALL PIECES OF GLASS**  
*Months offered: SEPTEMBER & OCTOBER*  
Join two young people at a star party as they observe planets and stars in a telescope. Learn how the telescope has changed from a modified spyglass using two small pieces of glass to the huge, space and land-based devices of today. Standards: 4.E.3A.3

**WHO DISCOVERED AMERICA?**  
*Months offered: SEPTEMBER & OCTOBER*  
Students will explore celestial navigation techniques, such as using kamals (used by Arabic and North African sailors) and quadrants to measure the altitude angle of the North Star to determine latitude. We will learn how compasses and celestial events, such as a lunar eclipse, can be used to determine how far east of west one has traveled on Earth. We will uncover details related to Columbus’ voyage to North America and about other peoples who discovered America even before Columbus. Standards: 4.E.3A.2, 4.E.3A.3, Social Studies 4.1.3, 4-1.4

**DISCOVERY PROGRAMS**

**DO YOU SEE WHAT I SEE?**  
*Months offered: SEPTEMBER & OCTOBER*  
Students will explore ways that light can be reflected, refracted, diffracted and absorbed by various objects. They will also investigate how the eye converts light into images. Standards: 4.P.4A.1, 4.P.4A.3, 4.P.4A.4, 4.P.4A.5

**KINESTHETIC ASTRONOMY**  
*Months offered: NOVEMBER & DECEMBER*  
Students get a feel for the scale of the universe as they sort celestial objects; then they model the Earth, Moon and Sun. They will discover why stars appear to move across the sky each day/night, why we see different stars during the year and how Earth’s tilt causes seasons. Standards: 4.E.3A.1, 4.E.3A.2

**LUNAR DESIGN CHALLENGE**  
*Months offered: NOVEMBER & DECEMBER*  
Students will design, build, and test a Lunar Buggy to transport astronauts and cargo on the Moon. They will collect and analyze data, take measurements, and refine their models using the Engineering Design Process. Standards: 4.S.1A.1, 4.S.1A.2, 4.S.1A.3, 4.S.1B.1
DISCOVERY PROGRAMS

SOUND-SATIONAL  Months offered: SEPTEMBER & OCTOBER
Students will learn about sound waves and how volume and pitch may be manipulated. They will use teamwork to construct their own musical instruments and play a song. Standards: 4.P.4B.1, 4.P.4B.2

VERTEBRATE TAXONOMY  Months offered: MARCH & APRIL
Students will participate in hands-on taxonomy activities as well as take a look inside the 5 groups of vertebrates using x-ray images. They will interact and observe live animals including salamanders, frogs/toads, turtles, snakes, an alligator, and an owl. Standards: 4.L.5A.1, 4.L.5B.3

WALK ACROSS THE SOLAR SYSTEM  Months offered: MARCH & APRIL
Students learn about the planets and the size of the solar system as they create a model of the solar system using a scale of 1 inch = 100,000 miles. This requires walking outside for about a mile, so please wear appropriate shoes! Standards: 4.E.3A.1, 4.E.3A.3, 4.E.3B.4
### Fifth Grade
**South Carolina Programs**

#### MONTHLY PROGRAM PAIRINGS

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<tr>
<th>SEPTEMBER &amp; OCTOBER</th>
<th>DECEMBER &amp; JANUARY</th>
<th>FEBRUARY &amp; MARCH</th>
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</table>
| Ecohike in Hitchcock Woods | *Defying Gravity*  
*Polygon Puzzle*  
*Ravenous Raptors*  
*Under the Sea* | *Defying Gravity*  
*CSI: Solutions*  
*Variable Ventures*  
*Polygon Puzzle* | Ecohike in Hitchcock Woods |

#### PLANETARIUM PROGRAMS

**DEFYING GRAVITY: IT IS ROCKE T SCIENCE**  
*Months offered: DECEMBER, JANUARY, FEBRUARY & MARCH*

Join host Apollo Aurora and her science reporters as they explore the science behind rocket power, gravity on other planets, and even monstrous black holes! Robot experts Apple I-6-8-6 and EGR-1 will also lend a few circuits to explain the force that keeps us humans all grounded. Well, some of the time! Standards: 5.P.5A.1, 5.P.5A.2

#### DISCOVERY PROGRAMS

**CSI: SOLUTIONS**  
*Months offered: FEBRUARY & MARCH*

Scotty’s dog is missing! Students use chromatography and sifting to separate mixtures; use indicators to make solutions and identify a mystery substance; and examine hair and fiber samples with microscopes in a simulated crime scene investigation. Standards: 5.P.2B.1, 5.P.2B.3, 5.P.2B.6

**RAVENOUS RAPTORS**  
*Months offered: DECEMBER & JANUARY*

What is a raptor? How is an osprey’s talon different from an owl’s? Students will take an up-close look at birds of prey and examine their role in the food chain. Using field guides and wing/talon specimens we will compare and contrast physical characteristics, adaptations and habitats of these predators. Standards: 5.L.4A.2, 5.L.4B.1, 5.L.4B.3, 5.L.4B.4

**UNDER THE SEA**  
*Months offered: DECEMBER & JANUARY*

In this deep-sea mapping expedition, students use depth probes, look for patterns, make inferences and map the ocean floor using a large 3D Landforms Puzzle. They compare continental landforms with oceanic landforms, discuss constructive and destructive processes, and discover connections between landforms and plate tectonics. Standards: 5.E.3A.2, 5.E.3B.1, 5.E.3B.2

**VARIABLE VENTURES**  
*Months offered: FEBRUARY & MARCH*

Students identify different types of mixtures and work in collaborative teams to make various solutions. They manipulate variables to change the rate of dissolving. Standards: 5.P.2B.1, 5.P.2B.3, 5.P.2B.4, 5.P.2B.5

**POLYGON PUZZLE**  
*Months offered: DECEMBER, JANUARY, FEBRUARY & MARCH*

Students will explore properties of Greek roots of polygons and polyhedrons. Using dynamic computer software called Geometer’s Sketch Pad they will be challenged to solve a puzzle as they construct acute, obtuse, right, isosceles, equilateral, and scalene triangles. Standards: Mathematics 5.G.3, 5.G.4

Ruth Patrick Science Education Center – Student Programs 2019-2020
OUTDOOR EXTENDED HOUR PROGRAM

ECOHIKE IN HITCHCOCK WOODS  Months offered: SEPTEMBER, OCTOBER, APRIL & MAY
This is a two-hour, two-mile guided hike through Hitchcock Woods. Native plants will be identified, evidence of animal life will be examined, and forest communities will be compared. Standards: 5.L.4A.1, 5.L.4A.2, 5.L.4B.1, 5.L.4B.2, 5.L.4B.3, 5.L.4B.4
Discovery and Planetarium Programs are **NOT** offered every month. Please see the calendar below along with program descriptions for **MONTHLY** offerings. When planning your visit, please select programs offered in the **same month**.

<table>
<thead>
<tr>
<th>2019-2020 South Carolina Upper Level Student Programs Calendar</th>
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<tbody>
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<td><strong>SEPTEMBER</strong></td>
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<tr>
<td><em>Sunstruck</em></td>
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<td>Animal Adaptations</td>
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<td>Energy Transformations</td>
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<td><strong>Ecohike in Hitchcock Woods (2 hour guided hike)</strong></td>
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<td><strong>Eighth Grade</strong></td>
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* Indicates a Planetarium Program (you may only select ONE planetarium show per visit)
** Indicates an Ecohike (these hikes are a stand alone program offered off-site at Hitchcock Woods)
SUNSTRUCK  Months offered: SEPTEMBER & OCTOBER
Discover the wonders of our sun! Its incredible energy supports life on Earth, but solar storms can threaten our technology and way of life. Discover connections between sunspots, magnetic fields, aurora, and power failures. Travel to the distant future to discover our sun’s connection to the cosmic cycle of life and death. Standards: 6.P.3A.1, 6.E.2A.2

SEVEN WONDERS  Months offered: FEBRUARY & MARCH
Turn back the pages of time and witness the ancient wonders of the world, as they appeared thousands of years ago. Explore the Great Pyramid, stand in the shadow of the towering Colossus and experience the rest of the world’s Seven Wonders. We will investigate the theories of how these wonders were created, and get a glimpse of some of the universe’s greatest wonders. Standards: Social Studies 6-1.3, 6-2.3

ANIMAL ADAPTATIONS  Months offered: SEPTEMBER & OCTOBER
We will compare and contrast structures, processes and behavior responses that help endothermic and ectothermic animals survive. Students will observe and interact with live animals including salamanders, frogs/toads, turtles, snakes and alligator and an owl. Standards: 6.L.4B.1, 6.L.4B.2, 6.L.4B.3, 6.L.4B.5

ENERGY TRANSFORMATIONS  Months offered: SEPTEMBER & OCTOBER
Students will build and power circuits using different energy sources such as chemical, mechanical and thermal. Explore the benefits of solar panels and learn how clean energy is the way of the future! Program Sponsored by: SCANA Standards: 6.P.3A.1, 6.P.3A.3

HIKER  Months offered: FEBRUARY & MARCH
This interactive computer program explores graphing concepts by tracking students’ movements. Students enjoy the challenge and fun of moving to create specific line graphs. Standards: Mathematics 6.EEI.9

SIMPLE MACHINES  Months offered: FEBRUARY & MARCH
Students will conduct investigations to distinguish between force and work, and mass and weight. They will demonstrate how simple machines such as levers, pulleys, and inclined planes reduce the amount of force needed to do work. Standards: 6.P.3B.1, 6.P.3B.2
ECOHIKE IN Hitchcock Woods  
Months offered: NOVEMBER, APRIL & MAY

This is a two-hour, two-mile guided hike through Hitchcock Woods. Native plants will be identified, evidence of animal life will be examined, and forest communities will be compared. Standards: 6.L.4B.1, 6.L.4B.2, 6.L.4B.5
### Seventh Grade South Carolina Programs

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**PLANETARIUM PROGRAMS**

**GROSSOLOGY AND YOU**  
**Months offered: OCTOBER, NOVEMBER, JANUARY & FEBRUARY**  
Join Noreen Neuron, host of the “Personal Universe” game show, as she leads us through a competition to decide which body system is the best and brightest. Will it be Scabby (the immune system), Boogie (the respiratory system) or Flatus (the digestive system)?  

**ARE YOU DENSE?**  
**Months offered: JANUARY & FEBRUARY**  
Students explore density using Earth materials including minerals, water, sand, and iron filings. They will take measurements, collect data, plot coordinates, and interpret graphs as they analyze the mathematical relationship between mass and volume.  

**CENTER OF THE ATOM**  
**Months offered: OCTOBER & NOVEMBER**  
Students explore atomic structure using a series of hands-on activities which concludes with the discovery of the uses of an atom they create using the Interactive Nucleus display and the Living Periodic Table.  

**CHANGES MATTER**  
**Months offered: JANUARY & FEBRUARY**  
Students explore physical and chemical properties of matter. They compare physical and chemical changes and experience reactivity through experiments and an “igniting” demonstration!  

**MEET THE ELEMENTS**  
**Months offered: OCTOBER & NOVEMBER**  
Students “meet the elements” in a fun music video; then work together to classify materials as elements, compounds and mixtures. They will build atomic models and discover why compounds are either ionic or covalent.  

**RADIOECOLOGY**  
**Month offered: OCTOBER**  
Learn what happens when radionuclides and ecosystems meet with the Savannah River Ecology Laboratory scientists. The SREL has the only radioecology undergraduate education program in the world. Challenge the myths and learn the facts about radioecology from research conducted at the SRS in Aiken, South Carolina, the Chernobyl Exclusion Zone in Russia, and the Fukushima Daiichi accident in Japan.  
Seventh Grade
SC Programs Continued…

DISCOVERY PROGRAMS

RAVENOUS RAPTORS  Months offered: JANUARY & FEBRUARY
What is a raptor? How is an osprey’s talon different from an owl’s? Students will take an up-close look at birds of prey and examine their role in the food chain. Using field guides and wing/talon specimens we will compare and contrast physical characteristics, adaptations and habitats of these predators. Standards: 7.E.5A.1, 7.E.5B.1, 7.E.5B.2

OUTDOOR EXTENDED HOUR PROGRAM

ECOHIKE IN HITCHCOCK WOODS  Months offered: SEPTEMBER, APRIL & MAY
This is a two-hour, two-mile guided hike through Hitchcock Woods. Native plants will be identified, evidence of animal life will be examined, and forest communities will be compared. Standards: 7.E.5A.1, 7.E.5B.1, 7.E.5B.
MONTHLY PROGRAM PAIRINGS

**OCTOBER**
- Cosmic Colors
- Minerals, Ores & Fossil Fuels
- Radioecology
- Rockin’ & Rollin’

**NOVEMBER**
- Cosmic Colors
- Lunar Design Challenge
- Minerals, Ores & Fossil Fuels
- Rockin’ & Rollin’

**DECEMBER & JANUARY**
- Cosmic Colors
- Kinesthetic Astronomy
- Lunar Design Challenge
- Seafloor Surveyors

**FEBRUARY & MARCH**
- Cosmic Colors
- Kinesthetic Astronomy
- Force & Motion

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**PLANETARIUM PROGRAMS**

**COSMIC COLORS**  
**Months offered:** OCTOBER, NOVEMBER, DECEMBER, JANUARY, FEBRUARY & MARCH  
Cosmic Colors will take you on a wondrous journey across the electromagnetic spectrum. Discover the many reasons for color—like why the sky is blue and why Mars is red. Take a tour within a plant leaf and journey inside the human eye. Investigate x-rays at your doctor’s office and at a monstrous black hole. Get ready for an amazing adventure under a rainbow of cosmic light! Standards: 8.P.3A.1, 8.P.3A.3, 8.P.3A.5

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**DISCOVERY PROGRAMS**

**FORCE & MOTION**  
**Months offered:** FEBRUARY & MARCH  
Students will conduct investigations to distinguish between force and work, and mass and weight. They will demonstrate how simple machines such as levers, pulleys, and inclined planes reduce the amount of force needed to do work. Standards: 8.P.2A.1, 8.P.2A.2, 8.P.2A.3, 8.P.2A.4, 8.P.2A.5

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**KINESTHETIC ASTRONOMY**  
**Months offered:** DECEMBER, JANUARY, FEBRUARY & MARCH  
Students get a feel for the scale of the universe as they sort celestial objects; then they model the Earth, Moon and Sun. They will discover why stars appear to move across the sky each day/night, why we see different stars during the year and how Earth’s tilt causes seasons. Standards: 8.E.4A.1, 8.E.4B.1

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**MINERALS, ORES & FOSSIL FUELS**  
**Months offered:** OCTOBER & NOVEMBER  
Students learn to identify minerals by examining key properties of museum quality specimens; then they identify 10 unknown minerals using a dichotomous key. Valuable products made from Earth resources are discussed throughout the program. Standards: 8.E.5A.1, 8.E.5A.2

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**LUNAR DESIGN CHALLENGE**  
**Months offered:** NOVEMBER, DECEMBER & JANUARY  
Students will design, build, and test a Lunar Buggy to transport astronauts and cargo on the Moon. They will collect and analyze data, take measurements, and refine their models using the Engineering Design Process. Standards: 8.S.1A.2, 8.S.1A.3, 8.P.2A.1, 8.P.2A.2

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**RADIOECOLOGY**  
**Month offered:** OCTOBER  
Learn what happens when radionuclides and ecosystems meet with the Savannah River Ecology Laboratory scientists. The SREL has the only radioecology undergraduate education program in the world. Challenge the myths and learn the facts about radioecology from research conducted at the SRS in Aiken, South Carolina, the Chernobyl Exclusion Zone in Russia, and the Fukushima Daiichi accident in Japan. Standards: 8.E.6B
ROCKIN’ & ROLLIN’  
**Months offered: OCTOBER & NOVEMBER**

Students observe excellent specimens of igneous, sedimentary and metamorphic rocks. They compare physical properties, relate properties to formation processes, and examine sand derived from various rocks. They also classify fossils and products of Earth resources. Standards: 8.E.5A.1, 8.E.5A.4, 8.E.5A.5

SEAFLOOR SURVEYORS  
**Months offered: DECEMBER & JANUARY**

Join us for a deep-sea mapping expedition that reveals connections between landforms and plate tectonics. Students use sounding probes, look for patterns, and make inferences about the landforms in a 5’ by 7’ scale model of the region from 0° to 22° N and 35° to 65° W. Students discuss constructive and destructive forces and compare the worldwide distribution of earthquakes and volcanoes to plate boundaries. Standards: 8.E.5A.4, 8.E.5A.5, 8.E.5B.1, 8.E.5B.2
### Monthly Program Pairings

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<thead>
<tr>
<th>OCTOBER</th>
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**PLANETARIUM PROGRAMS**

**SUNSTRUCK**  **Months offered: OCTOBER, NOVEMBER, JANUARY & FEBRUARY**
Discover the wonders of our sun! Its incredible energy supports life on Earth, but solar storms can threaten our technology and way of life. Discover connections between sunspots, magnetic fields, aurora, and power failures. Travel to the distant future to discover our sun’s connection to the cosmic cycle of life and death. Standards: H.E.2A, H.E.2B

**DISCOVERY PROGRAMS**

**CENTER OF THE ATOM**  **Months offered: OCTOBER, NOVEMBER, JANUARY & FEBRUARY**
Students explore atomic structure using a series of hands-on activities which concludes with the discovery of the uses of an atom they create using the Interactive Nucleus display and the Living Periodic Table. Standards: H.C.3A, H.P.3G

**CHANGES MATTER**  **Month offered: FEBRUARY**
Students explore physical and chemical properties of matter. They compare physical and chemical changes and experience reactivity through experiments and an “igniting” demonstration! Standards: H.C.6

**LUNAR DESIGN CHALLENGE**  **Month offered: JANUARY**
Students will design, build, and test a Lunar Buggy to transport astronauts and cargo on the Moon. They will collect and analyze data, take measurements, and refine their models using the Engineering Design Process. Standards: HP.1.A

**PROBING THE PERIODIC TABLE**  **Months offered: OCTOBER & NOVEMBER**
This program demystifies the periodic table and makes learning about atoms fun! Students grasp the organization of the periodic table as they construct a Periodic Table of Foods. Then, they build atomic models and use them to find patterns in the structure and behavior of elements. Standards: H.C.3A, H.P.3G

**RADIOECOLOGY**  **Month offered: OCTOBER**
Learn what happens when radionuclides and ecosystems meet with the Savannah River Ecology Laboratory scientists. The SREL has the only radioecology undergraduate education program in the world. Challenge the myths and learn the facts about radioecology from research conducted at the SRS in Aiken, South Carolina, the Chernobyl Exclusion Zone in Russia, and the Fukushima Daiichi accident in Japan. Standards: H.B.6D, H.C.2B
ECOHIKE IN HITCHCOCK WOODS  
**Months offered: SEPTEMBER, MARCH, APRIL, & MAY**

This is a two-hour, two-mile guided hike through Hitchcock Woods. Native plants will be identified, evidence of animal life will be examined, and forest communities will be compared. Standards: H.B.6A, H.B.6C
Traveling Science and Mathematics Demonstrations Program

FREE Teacher Resources and Visiting Scientists Available

The Traveling Science and Mathematics Demonstrations Program has over 300 science and math kits available for use in the classroom. Supplement your curriculum with nationally recognized and state adopted exemplary materials. Kits have been correlated to SC state standards. Many kits contain children’s literature so that you can integrate your science and language arts lessons.

In addition to these resources, you can request a visiting Scientist with a Traveling Resources and Neat Demonstrations (STRAND) volunteer for classroom presentations.

For more information please visit http://rpsec.usca.edu/travelingscience/ or call us at 803-641-3683.

SC Regional Future City Competition

Future City is a cross-curricular program that lets students in the 6th, 7th, and 8th grades do the things engineers do: identify problems, brainstorm ideas, design solutions, test and retest, build and then share the results. Future City is a program of DiscoverE.


34th Annual Science Education Enrichment Day (SEED)

Mark your calendars for the CSRA’s premier STEM festival. Join us on October 5th from 10am-3pm and celebrate innovations in science, technology, engineering, and mathematics (STEM). Visit the Ruth Patrick Science Center and other sites on the USC Aiken campus as student groups, regional corporations, museums, educators, and national labs join forces to present hundreds of activities for people of all ages.

Organizers hope to increase awareness of the critical role science and other STEM fields play in our everyday existence.

Visit http://rpsec.usca.edu/SEED for more information.
Providing professional learning activities for teachers is a primary method for reaching our goal of "Infusing a Love for Science, Technology, Engineering and Mathematics." Highly qualified teachers are the primary way to impact our students. Professional Learning at the RPSEC offers a variety of activities during the summer and the academic year.

Professional Learning opportunities focus on a content area but include all STEM areas.


**Traveling Interdisciplinary Literacy Trunks (TILTS)**

Traveling Interdisciplinary Literacy Trunks (TILTs) are teacher-designed, interdisciplinary units of study that are aligned with academic standards from multiple content areas with an emphasis on writing across the curriculum.

TILT unit plans are now available, FREE of charge, to ALL teachers.

Each completed TILT includes the following: a unit plan, children’s literature, class sets of novels, science equipment, math manipulatives and a teacher resource list. Reserve yours today by e-mailing the RPSEC at travelingscience@usca.edu or calling 803-641-3638.

Visit [http://rpsec.usca.edu/CE-MIST/Trunks/CE-MIST_TILT.html](http://rpsec.usca.edu/CE-MIST/Trunks/CE-MIST_TILT.html) for more information.

Funding for our TILTs has been provided by the Center of Excellence in Middle-level, Interdisciplinary Strategies for Teaching (CE-MIST), the Aiken Writing Project (AWP) and the Sunrise Rotary Club of Aiken.