

Roper Mountain



2021 – 2022 Educator's DirectoryStandards Based Learning Labs in Science and Social Studies

Priority registration deadline for on-site learning labs is September 10, 2021.Due to uncertain cirumstances, we will accept registrations after priority deadline expires.



A 402 Roper Mountain Road Greenville, SC 29615

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RoperMountain.org







Roper Mountain

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ROPER MOUNTAIN SCIENCE CENTER

Welcome!

We are excited to have students back on the Mountain this year! We have an amazing new 28,000 square foot Environmental Science and Sustainability Building that opened June of 2021 to share with you. The exhibits and new lessons further Roper Mountain as a unique and special place for you and your students! Check out the new offerings we have in this guide. Based on teacher feedback, we are utilizing a fillable PDF registration instead of fax (click here for form). This form can be submitted electronically or scanned and emailed to our Scheduling Office.

Because our virtual e-Learning programs were so popular last year, we will continue these opportunities. In addition to your trip to the Mountain, you can connect with us multiple times over the course of the year though Live From Roper virtual lessons, our Virtual Field Trips, and our Science On Wheels.

We look forward to providing an exceptional experience and setting that will give you and your students a memorable, exciting, and standards-based field trip that cannot be duplicated.

Michael Weeks

Director













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ROPER MOUNTAIN SCIENCE CENTER

Roper Mountain is an educational facility of Greenville County Schools, South Carolina. This 60 acre complex is dedicated to providing educational opportunities that excite and motivate students and teachers through immersive hands-on learning labs. The Mountain's educators also travel to schools for outreach programs in science, as well. Educational programs for the family are offered through Friday night observatory/ planetarium shows and special events throughout the year. Call the Education Office at 864.355.8967 or visit RoperMountain.org for information on all of our services.

Standards-Based Learning Labs

Learning labs held at both the center and in schools are designed to support the South Carolina Curriculum Standards in science and social studies. We recommend that Greenville County School teachers request their visit for the month after they have completed the science curriculum unit related to the learning lab they wish to attend.

How To Schedule On-Site Field Trips

- Teachers must submit a request form by the priority deadline of September 10, 2021. Due to uncertain cirumstances, we will accept registrations after priority deadline expires.
- We are utilizing a fillable PDF registration instead of fax. Registration forms
 can be submitted electronically (click here) or scanned and emailed to our
 Scheduling Office at dogle@greenville.k12.sc.us.
- Registration forms may be mailed to: Roper Mountain Science Center Education Office
 - 402 Roper Mountain Road, Greenville, SC 29615
- Requests received after September 10, 2021 will be scheduled last.
- Admission for learning labs is free for Greenville County Public, Private, and Home School students and teachers except for special engagement learning labs, outreach and virtual field trips. For students outside Greenville County and for charter schools, see the fees page (Page 26).
- The center now provides lunch as part of your visit. Our new on-site GCS FANS (Food and Nutrition Services) food service provides FREE school meals for all students. There is no longer the need for students to bring bag lunches or use an outside food vendor. Teachers and chaperones may purchase full meals for \$4.10, cash required. Click here for the menu. For questions about your meal, contact Amanda Drew at adrew@greenville.k12.sc.us or 864.355.0806.
- On the request form, rank the group (1st, 2nd, 3rd) or list the learning labs (4th 8th) you would like to attend.
- The form enables up to two teachers to schedule a visit on the same day so they can share a bus.
- Multiple classes may request to visit the same day if noted on your registration form prior to being scheduled.
- For more information about learning labs contact the Education Office at 864.355.8967.
- 4th and 6th grade classes may request a second visit to Roper Mountain. All







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FIRST GRADE

First Grade May Adventure Days

An exciting day of adventure awaits as you and your students participate in hands-on learning experiences specifically tailored to first grade learners. These lessons are offered ONLY in May. Space is limited so these Adventures will be scheduled on a first come, first served basis.

Choose one of the following three options for your day-long experience:

1. Exploring Light & Shadows



Only Available in May

In this day-long exploration, students will discover the properties of light and shadows through hands-on experiments in our Symmes Hall labs as well as enjoy an interactive presentation on space and light in the Hooper Planetarium.

Magic Tree House: Space Mission

Hooper Planetarium and Giant Dome Theater

Peek into the tree house and follow Jack and Annie on an exciting adventure as they meet an astronomer and an astronaut who guide them along a fun-filled journey to discover the secrets of the Sun, Moon, planets, space travel and more. Science Standards: 1.E.3A.3

Along with the Planetarium show, your day also includes the following experiences:

Feel the Heat

Symmes Hall of Science — 30 Minutes

Your future engineer will get warmed up with this hands-on experience! Students will explore the effect of the sun's heat in warming the earth by designing the most effective solution to block the sun's rays.

Science Standards: 1.E.3A.4; 1.E.3A.5; 1.S.1A.2; 1.S.1B.1

See the Light

Symmes Hall of Science — 30 Minutes

Unlock the mysteries of light! This hands-on experience will demonstrate how light behaves as it strikes an object and travels through translucent, transparent, and opaque materials.

Science Standards: 1.P.2A.1; 1.P.2A.2; 1.S.1A.4

Cast a Shadow

Symmes Hall of Science — 30 Minutes

Can you solve the shadow challenge? Students will use an interactive shadow box to explore how shadows change as an object moves past a light source. and use their discoveries to determine which part of the city will have the most shade during the day.

Science Standards: 1.P.2A.1; 1.P.2A.3; 1.S.1A.2

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FIRST GRADE

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OR

2. Down on the Farm New!



Only Available in May

In this day-long exploration, students will move throughout the Living History Farm to learn about plant structures, land use, and natural resources as they interact with our farm animals, explore the gardens and discover artifacts from the community in our 200 year old cabins, as well as enjoy an interactive presentation on space and light in the Hooper Planetarium.

Magic Tree House: Space Mission

Hooper Planetarium and Giant Dome Theater

Peek into the tree house and follow Jack and Annie on an exciting adventure as they meet an astronomer and an astronaut who guide them along a fun-filled journey to discover the secrets of the Sun, Moon, planets, space travel and more. Science Standard: 1.E.3A.3

Along with the Planetarium show, your day also includes the following experiences:

Gardening Goodness

Living History Farm — 30 Minutes

Students will explore our extensive Heritage and Herb gardens and discover the structures that help plants grow and reproduce while also helping with traditional children's chores as they learn what it takes to make a garden grow. In the event of severe weather, this lesson will take place in the one room schoolhouse.

Science Standard: 1.L.5A.1; Social Studies Standards: 1.G.3; 1.E.2

Cabin Life in the 1800s

Living History Farm — 30 Minutes

Students will discover the natural resources required to build and maintain a 19th Century farm as they participate in a number of hands-on tasks and handle artifacts that will give them a feel for what it was like to be a pioneer in our community in the 1800s.

Science Standard: 1.E.4B.1: Social Studies Standards: 1.H.3

Farm Animal Fun

Living History Farm -30 Minutes

Students will participate in the care and feeding of our barn animals, have a chance to milk our imitation cow and also make butter as we compare how goods and services have changed over time.

Science Standard: 1.E.4; Social Studies standard: 1.E.2, 1.H.3

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FIRST GRADE

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OR

3. Natural Science Adventure New!



Only Available in May

Discover the wonders of nature as you spend the entire day exploring Harrison Hall of Natural Science while rotating through six exciting, standards-based lessons. Your students will have the chance to hold, touch, and closely examine some of our most popular resident creatures while moving from one interactive exhibit to another.

The Natural Science Adventure includes the following:

Creatures by the Seashore

Harrison Hall of Natural Science

Students will discover the importance of conserving our oceans as they explore the aquariums and interact with a variety of marine animals in our touch tanks. Science Standard: 1.E.4B.2

Plants of the Rainforest

Harrison Hall of Natural Science

Students will examine a variety of everyday products such as cinnamon, ginger, cocoa, vanilla and others that come from plants that grow in the rainforest. Science Standards: 1.L.5A.1

Rainforest Exploration

Harrison Hall of Natural Science

In this immersive exploration of the rainforest, students will learn about the characteristics of this unique habitat and get up close with some of the live animals and plants that live there.

Science Standards: 1.L.5B.2

South Carolina Environments

Harrison Hall of Natural Science

While exploring the Ecology Lab, students will examine the plants found within a variety of South Carolina environments including mountain streams, beaver ponds, cypress swamps and salt marshes.

Science Standards: 1.L.5B.2

Earth's Natural Resources

Harrison Hall of Natural Science

Students will discover the mineral wealth that lies beneath their feet as they examine a variety of natural resources that are important to their daily life that are found in South Carolina.

Science Standards: 1.E.4B.1

Butterfly Garden Discovery

Outdoor Butterfly Garden

Take a guided tour of our beautiful outdoor Butterfly Garden and observe the different parts of plants that help butterflies survive and reproduce. In the case of inclement weather, this lesson will take place in the Discovery Lab.

Science Standards: 1.L.5A.1, 1.L.5A.2







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SECOND GRADE

Second Grade Explorations

An exciting day of learning awaits your students as they explore multiple immersive lessons! Besides taking part in two different 45-minute learning lab pairings of your choosing, students will also experience an engaging planetarium presentation. 9:30am - 1:00pm.

Planetarium Show New! **Take Flight**



Hooper Planetarium and Giant Dome Theater

Students will learn about the four forces of flight — lift, weight, thrust and drag — with demonstrations by an animated Orville and Wilbur Wright. They will share observations and discoveries with Leonardo da Vinci as he creates his "flying machine." Students will also meet Bessie Coleman, the first woman of African American and Native American descent to earn an aviation pilot's license; break the sound barrier with Chuck Yeager; and take an exhilarating flight across the Atlantic Ocean with Amelia Earhart. Included with the experience is a sky talk highlighting easy-to-find objects in the night sky and a short film about weather.

Science Standards: 2.P.4A.2, 2.P.4A.3, 2.P.4A.4, 2.P.4A.5, 2.E.2A.1, 2.E.2A.3,

Along with the planetarium show, choose one of the following three options:

Option A

(see lab descriptions on following page) **Nature Quest/Awesome Amphibians**

Animal Explorations

Option B

(see lab descriptions on following page) **Weather Explorers** AND Surviving In the Wild

Option C

(see lab descriptions on following page)

Our Home: Then & Now

AND

Our Farm: Then & Now

Continued on next page.







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SECOND GRADE

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Along with the planetarium show, choose one of the following three options:

Option A

Nature Quest/Awesome Amphibians

It takes cooperation to survive! Students will enjoy a guided nature walk through different environments to discover how animals and plants depend on each other through a scavenger hunt. Emphasis will be placed on field safety and scientific observation.

Science Standard: 2.L.5B.1

(NOTE: in the event of inclement weather, and in winter students will remain indoors and participate in an Awesome Amphibians lesson, Science Standard 2.L.5A.1)

Animal Explorations

Through classification, students will become familiar with the physical characteristics of animals belonging to six basic groups including: Mammals, Birds, Amphibians, Reptiles, Fish, and Insects. Hands-on time with a variety of live and mounted animals will make this an exciting learning experience. Science Standard: 2.L.5A.1

Option B

Weather Explorers

Students will examine a variety of weather instruments to learn how we measure and record weather. From wind demonstrations to bubbles galore, this lab will blow you away!

Science Standards: 2.E.2A.1, 2.E.2A.3

Surviving In the Wild

From the mountains to the sea, students will discover what animals need in order to survive wherever they live. Students will visit and explore our specially-designed animal habitats and compare them with what an animal needs to survive in the real world.

Science Standard: 2.L.5B.1

Option C New!

Our Home: Then & Now

Explore how Americans live, work and play has changed over time. Using artifacts from the 1800s, students will assist with tasks around our historic log cabins, try on period clothing and make a dipped candle to take home! Social Studies Standards: 2.H.3, 2.G.3

Our Farm: Then & Now

Students will experience a bygone era of farming and transportation by participating in 1800s farm chores, noting patterns of continuity and change as we use tools to work in our heritage garden, examine a rare historic wagon and related artifacts, and care for and feed our farm animals.

Social Studies Standards: 2.H.3, 2.G.3





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THIRD GRADE

Natural Science Discovery Day You will receive four 45-minute learning labs in the following "Discover"

You will receive four 45-minute learning labs in the following "Discover" group. Learning labs will be at 9:30am, 10:20am, 11:10, and 12:30pm. Lunch will be scheduled from 12:00noon to 12:25pm.

Also see the "Social Studies and Science Experience" 3rd grade option on the next page.

Discover the Following:

Marine Exploration

Harrison Hall of Natural Science

Examine marine life up close and personal as you explore our marine habitat and discover how they can only survive in environments where their basic needs are met.

Science Standards 3.L.5A

Fossils: Discover the Past

Harrison Hall of Natural Science

As paleontologists, students will observe mystery fossils to learn about life in our ancient past. Students will examine fossil specimens, hunt for marine fossils in our fossil pit and visit our new dinosaur trail.

Science Standards 3.L.5B.3

Rainforest Adventures

Harrison Hall of Natural Science

Come experience the sights, sounds, slithers and hops of a rainforest ecosystem. The lesson will include a tour of our rainforest greenhouse, and the exploration of various animals who call the rainforest their home. Science Standard: 3.L.5.A.1

Animals of the Palmetto State

Harrison Hall of Natural Science

Through handling and closely examining a variety of live animals, students will discover ways in which these unique organisms obtain food for energy within specific South Carolina habitats.

Science Standards 3.L.5A.2







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THIRD GRADE

Farm and Science Discovery Social Studies and Science Experience 9:30am to 1:15pm

Up to four school classes rotate through four different 45-minute learning labs. Learning labs support both the Science and Social Studies state standards. Lunch will be scheduled from 11:10am-11:35am.

Not available in January.

S.C. Daily Life in the 1800s

Living History Farm

By participating in daily chores that were required in the barn, garden, and farmhouse, students will investigate the cultural characteristics of the Scots-Irish families that scratched out a living on the Carolina frontier. Social Studies Standard: 3.5.3.HS, 3.4.1.PR

Migration Mystery New! Living History Farm



By working together to decipher clues from two traveling trunks, students will investigate the motivations behind human migration and how places can change as a result. Our journey will involve hands-on activities as we explore Cherokee culture through games, tools, and traditions, and delve into their forced migration, known as the Trail of Tears.Next, students will unpack and examine clues pointing to the push and pull factors of the Great Migration that led many African-Americans away from the South to jobs in the big cities of the North. Social Studies Standard: 3.5.3.HS, 3.4.1.PR

Carolina Treasures: Our State's Minerals

Harrison Hall of Natural Science

What is a mineral? How are minerals used? These and other questions will be answered as students discover there are mineral treasures buried under their feet that have important roles in our everyday lives. Our "mineral detectives" will refine their inquiry skills by matching minerals and rocks with their physical properties and uses. They'll also learn about the formation of crystals and pan for gem stones.

Science Standards: 3.E.4A.1, 3.E.4A.3

Marine Exploration

Harrison Hall of Natural Science

Examine marine life up close and personal as you explore our marine habitat and discover how they can only survive in environments where their basic needs are met.

Science Standards 3.L.5A







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FOURTH GRADE



Fourth grade teachers may request a second visit for an additional unique experience.

A typical Fourth Grade visit will consist of either two 90-minute learning labs or a lab and planetarium experience. Lunch will be scheduled as part of vour visit.

Storm Chaser Engineering

Symmes Hall of Science — 90 Minutes

In this lab, your students will become storm-chasing meteorologists with a mission. They will learn about how air masses and fronts cause the weather conditions that lead to thunderstorms and tornadoes. Using the engineering process, students will design a tornado-proof structure to hold weather tools that can help predict when a tornado may strike.

Science Standards: 4.E.2B.2,4.S.1A.2, 4.S.1B.1

Light Saves the Day!

Symmes Hall of Science — 90 Minutes

Superhero Rohawk has been captured! Working in collaborative teams, students will use special skills and gadgets to help our hero escape using the properties, behaviors, and interactions of light energy. Students will use their STEM skills to solve problems, free Rohawk, and save the world! Science Standards: 4.P.4A.1, 4.P.4A.2, 4.P.4A.4, 4.P.4A.5; 4.S.1A.2

American Revolutionaries

Living History Farm — 90 Minutes

By taking part in a reenactment, students will discover the hardships of military life as well as how the battle of Cowpens was a decisive turning point in our fight for freedom. Students will discover Revolutionary War spy techniques as they help to convey a secret message! Finally, they will learn about the significance of the Declaration of Independence and write with a guill pen.

NOT available in January.

Social Studies Standard: 4.2.CE, 4.2P, 4.2CX

Sounds Dangerous! - Mystery on Mars

Symmes Hall of Science — 90 Minutes

Students will work as a team of engineers as they travel in their rover to a new base on Mars. The team detects a dangerous vibration in the rover which could jeopardize the vehicle and crew. Using sound meters and oscilloscope software, student teams will locate the source and properties of the sound, including pitch and volume. Then they will work as a team to decrease the vibration. Will they fix the threatening sound in time? Join the mission and find out!

Science Standards: 4.P.4B.2; 4.S.1.A.6, 4.S.1.B.1

Our Water Story New!



NEW Environmental Science and Sustainability Building — 90 Minutes

Utilizing our new immersive multi-level water exhibit, this captivating lesson will explore the vital role rainforests, bacteria, forest fires and sand storms play in the water cycle. Students will make instant rain, snow and ice as they learn about the role life plays in the water cycle.

Science Standard: 4.E.2A.

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FOURTH GRADE

Continued from previous page.



Fourth grade teachers may request a second visit for an additional unique experience.

A typical Fourth Grade visit will consist of either two 90-minute learning labs or a lab and planetarium experience. Lunch will be scheduled as part of your visit.

"Earth, Moon & Sun" Planetarium Show with a Live Lesson by the Astronomer



Hooper Planetarium and Giant Dome Theater — 75 Minutes

This exciting show, inspired by American Indian oral traditions, will help students learn concepts about the Earth-Moon-Sun system. Learn the basics of solar energy and why the sun rises and sets. Examine the moon's orbit, craters, phases and eclipses. You'll even take a look at past and future space travel to our moon... and beyond!

Science Standards: 4.E.3A.1; 4.E.3A.2.; 4.E.3B.4

IN ADDITION

The astronomer will use the unique, full-dome planetarium to illustrate specific and challenging 4th grade space science concepts including:

- Earth: axis, tilt, rotation, day and night, orbital revolution and seasonal pattern
- Moon: location, movement, and phases
- Sun: properties and apparent path in the sky .

Science Standards: 4.E.3A.1; 4.E.3A.2.; 4.E.3B.1; 4.E.3B.2

Solar Exploration

Symmes Hall of Science — 90 Minutes

In this hands-on, interactive lesson, students will become solar adventurers as they explore how to use telescopes for solar viewing. They will take an in-depth look at the earth's seasons and how the sun's light intensity changes throughout the year. Students will also utilize augmented reality to discover how the sun creates the moon phases. Weather permitting, this lesson includes use of the 23" refractor telescope in the Charles E. Daniel Observatory.

Standards: 4.E.3A.3, 4.E.3B.1, 4.E.3B.4

Reconstruction in South Carolina



Living History Farm — 90 Minutes

Students will visit historic cabins and the one-room schoolhouse to gain a better understanding of life after the Civil War. They will experience a traditional 19th Century school lesson, explore the importance of cotton, and work in teams on a hands-on activity to become more familiar with sharecropping and the effects of Reconstruction on the South.

NOT available in January.

Social Studies Standard: 4.5.CX, 4.5.E, 4.5.CO 5-1.4

Amphibians and Insects - Characteristics and Growth



NEW Environmental Science and Sustainability Building — 90 Minutes

Poison glands, slimy skin, and armored bodies are just a few of the superhero-like adaptations students will explore in this lesson while getting up close to animals like beetles, moths, and salamanders. Students will also have the opportunity to explore the exhibits in our Environmental Science and Sustainability Center.

Science Standards: 4.L.5A.3, 4.L.5B.3.







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FIFTH GRADE

A typical Fifth Grade visit will consist of two 90-minute learning labs, one at 9:30am and a second one at 11:45am. Lunch will be scheduled as part of your visit.

A Challenging Mixture!

Symmes Hall of Science — 90 Minutes

Students have been hired by RMSC Recycling Company! While on the job, they will learn how to recognize a mixture by its physical properties and then use methods such as filtration, sifting, magnetism, chromatography, and flotation to separate a mixture back into its original state. Working in teams, students will devise a plan for separating a mixture of common recyclable materials. At quitting time, students will determine the value of their recycled materials! Science Standard: 5.P.2B.6

Explorabotics — Exploring Speed!

Symmes Hall of Science — 90 Minutes

The mission to Mars starts now! Students will work as international space agency teams to complete their mission to survive on Mars by exploring position, direction and speed. Using programmable robots, teams will work collaboratively to analyze data to program a solution to complete their missions. Students will engage in hands-on problem-solving, computational thinking and the engineering process to complete their mission!

Science Standards: 5.P.5A.1; 5.S.1A.5; 5.S.1B.1

Spy Academy: Unbalanced Forces

Symmes Hall of Science — 90 Minutes

Calling all agents! The world's top spy, OORoper, has gotten into some trouble while stealing Dr. Ollie's plan for world domination from his secret island laboratory. Students will take on the role of spy agents-in-training and have to work together to engineer, implement, and modify gadgets to save him. They will learn about the relationships between force, friction, and motion using robots (Spheros) and message-sending rockets. The agents will use what they learn to design a way to save the day!

Science Standards: 5.P.5A.3; 5.P.5A.4

Watershed Discovery



NEW Environmental Science and Sustainability Building — 90 Minutes

Dog poop, fertilizers, litter...oh my! What do all of these things have in common? Come to this lesson to discover the importance of our watersheds and explore how landforms and humans impact them. From creating landforms in our augmented reality sandbox to exploring with our interactive Enviroscape model, students will walk away from this lesson as watershed warriors with a greater appreciation for our environment. *Students will have the opportunity to explore our new Environmental Science and Sustainability Building. Social Studies Standards: 5.E.3A.1, 5.E.3B.3

Eco Detectives



NEW Environmental Science and Sustainability Building — 90 Minutes

Students will become wildlife biologists as they examine mystery skulls, scats, and dissected owl pellets of animals in our local ecosystems. Hands-on activities from observing teeth of skulls to scat contents will be used to infer what kind of consumers live in our ecosystems and what they depend upon for food. This lesson will also include time to explore our new Environmental Science and Sustainability Building.

Science Standards: 5.L.4B.1, 5.L.4B.2







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FIFTH GRADE

"Sea" It In A Day (January and February Only) 9:30am to 1:15pm

Up to four school classes rotate through four different 45-minute ocean themed learning labs. Lunch will be scheduled as part of your visit.

Landforms: Above and Below

Harrison Hall of Natural Science

Did you know that scientists know more about the moon than they do the depths of our oceans? Students will become ocean explorers as they use technology such as augmented reality sand tables and remotely operated vehicles to overcome some of the challenges that come along with discovering hidden landforms on the ocean floor.

Science Standard: 5.E.3A.2

A Muddy Mess!

Interdependent Relationships of the Salt Marsh Ecosystem

Harrison Hall of Natural Science

Step into the wonders of the salt marsh and discover the vital role that it plays in the health of our coastline as students explore the interdependent nature of this fascinating ecosystem. Pluff mud, brackish water and live salt marsh animals will be investigated.

Science Standards: 5.L.4A.1, 5.L.4A.2

Diving Deep into Coral Reefs

Harrison Hall of Natural Science

In this immersive lesson, students discover the fragile yet important role that coral reef ecosystems play in the health of our oceans. Through handson interaction with live ocean animals and visits to reefs using virtual reality viewers, students will explore ways that energy is transferred within this ecosystem.

Science Standards: 5.L.4, 5.L.4A

Marine Energy Flow

Harrison Hall of Natural Science

Energy flows between organisms large and small in our vast oceans. Students will put their powers of observation to the test as they examine marine life up close using live specimens and microscopes. Students will analyze the flow of energy, as well as our role in the growing micro plastic dilemma in our oceans. Science Standards 5.L.4B.2, 5.E.3B.3







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MIDDLE SCHOOL ASSEMBLY COMBINATIONS

Schedule Up To 300 Students

10:00am to 12:15pm

Divide your classes into two groups (up to 150 students each) and attend two incredible shows back-to-back in the Auditorium and Hooper Planetarium and Giant Dome Theater. Greenville County students are free. Other students are \$12 for the assembly combination. Lunch will be scheduled from 12:15am-12:40pm.

6th Grade



Clouds, Climates and Catastrophes!

Hipp Auditorium — Symmes Hall of Science — 60 Minutes

Join us as we explore the powerful relationships between water, energy, and Earth that lead to the various weather conditions we experience in our everyday lives. See giant clouds form before your eyes, lightning jump across the stage from our Tesla coil, temperature changes on screen through an infrared camera, and many other breathtaking demonstrations. Students will gain a better understanding of the hydrologic processes in the atmosphere, the effect of warm and cold air masses on weather, and how these processes affect climate in the different regions of Earth. Students will be "blown away" by the wonders of weather!

Science Standards: 6.E.2A.1, 6.E.2A.3, 6.E.2B.2, 6.E.2B.3

Sponsored by: **FLUOR**

AND ONE of the Hooper Planetarium shows listed below

"Tales of the Maya Skies"

Hooper Planetarium and Giant Dome Theater — 60 Minutes

"Tales of the Maya Skies" tells the story of how the ancient Maya interwove astronomy and culture to create a stable society that spanned 2,000 years, from 500 BC to 1500 AD. Mayan culture, life, architecture, and legends were intertwined with the ancient Maya's scientific observation and recording of planetary movements.

Social Studies Standard: 6.2.CC

OR

"Dynamic Earth"

Hooper Planetarium and Giant Dome Theater — 60 Minutes

In this highly engaging full-dome show, stunning satellite data visualizations and photorealistic animations are combined to provide unprecedented insights into the inner workings of Earth's dynamic climate system and the influence that the Earth-Sun system, plate tectonics, and the carbon cycle has upon its energy trails and environmental systems.

Science Standards 6.E.2A.2, 6E.2B

Both shows include "H2O Cycle"— 15 Minutes

Using live action videography, students will be immersed in the steps of the water cycle using the backdrop of the Upstate of South Carolina.

Science Standards: 6.E.2A.3







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MIDDLE SCHOOL LEARNING LABS

Schedule Up To 150 Students 9:30am to 1:15pm

6th Grade Lab Experience Divide your classes into six groups to rotate through three different hands-on

learning labs. Lunch will be scheduled from 12:15am-12:40pm.

STEM Lab — The Power to Survive

Only Available September - January

Symmes Hall of Science — Three 60-minute learning labs

The power is out; communications are down: How will you survive? In this three-part STEM lab, students will engage in hands-on learning to explore energy transformations and conservation of energy. Can wind energy supply the electricity needs? Is solar energy an option? Student teams will analyze data, solve problems, and then design and create solutions for survival through exploring generators, electromagnets and circuits. The interactive labs will include real-time solar energy production. Do your students have what it takes to survive?

Science Standards: 6.P.3.A.1; 6.P.3A.3; 6.S.1A.2; 6.S.1A.4; 6.S.1A.6

Made possible by:



OR

Bioblitz (Biodiversity Inventory)



Only Available January - May

NEW Environmental Science and Sustainability Building Three 60-minute learning labs

Decades ago, toxic dark sludge spilled into an upstate river. The Roper Environmental Law Firm needs our help in assessing any lingering environmental damage before another riverfront park is built. Students will work as a Bioblitz Investigative Team to examine life in this contaminated area and determine the health of the water by getting hands on with live invertebrates and creatures too small to see with the naked eye. Lab results from a large rainfall simulator will also be used to help the team create an EPA Superfund cleanup plan.

Science Standards: 6.L.5A.1, 6.L.1A.2, 6.L.4A.2, 6.L.4B.2; 6.E.2A.3







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MIDDLE SCHOOL ASSEMBLY COMBINATIONS

Schedule Up To 300 Students

10:00am to 12:15pm

Divide your classes into two groups (up to 150 students each) and attend two incredible shows back-to-back in the Auditorium and Hooper Planetarium and Giant Dome Theater. Greenville County students are free. Other students are \$12 for the assembly combination. Lunch will be scheduled from 12:15am-12:40pm.

7th Grade

Way Cool Science! — Physical and Chemical Changes in Matter

Hipp Auditorium — Symmes Hall of Science — 60 Minutes

Watch your students' *reactions* as they classify unknown changes as physical or chemical through our exciting, interactive demonstrations! Along the way they will explore physical properties, form conclusions about the law of conservation of matter, and delve into the effects of extreme temperature on different states of matter. Students will get an up close and personal view of chemical reactions, changes in states of matter, and acids and bases revealed by dramatic indicator changes.

Science Standard: 7.P.2B.1, 7.P.2B.4

AND

"Habitat Earth" Living in a Connected World

Hooper Planetarium and Giant Dome Theater - 45 Minutes

Living networks connect and support life forms large and small—from colonies of tiny microbes and populations of massive whales to ever-expanding human societies. Discover what it means to live in today's connected world. Dive below the ocean's surface to explore the dynamic relationships found in kelp forest ecosystems, travel beneath the forest floor to see how Earth's tallest trees rely on tiny fungi to survive, and journey to new heights to witness the intricate intersection between human and ecological networks. Science Standards: 7.EC.5A.1, 7.ED.5B.1

In addition, students will also experience:

Ecosystems

Hooper Planetarium and Giant Dome Theater - 15 Minutes

Ewww, a maggot. But it's only a decomposer! Students love to be "grossed out" and at the same time they will learn about the many important roles of living and non-living factors in an ecosystem. The show includes seventh grade terminology such as abiotic, consumer, community, omnivore, food web and many more – from the types of ecosystems to the roles of plants and animals and how it all interrelates.

Science Standards: 7.EC.5A.1, 7.ED.5B.1







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MIDDLE SCHOOL LEARNING LABS

Schedule Up To 150 Students 9:30am to 1:30pm

7th Grade Lab Experiences

Up to 150 students will divide into six groups to rotate through three different hands on learning labs. Lunch will be scheduled from 12:15am-12:40pm.

FORENSICS: Case of the Missing Chef

Only Available September - February

Symmes Hall of Science — Three 60-minute learning labs

Students are introduced to a case involving a missing chef. In three separate labs, students will act as forensic specialists, analyzing materials found at the crime scene. They will perform strawberry DNA extraction, evaluate DNA samples, determine blood type, and, in the chemistry component, analyze known and unknown materials found at the scene. At the end of the day, students will have enough information to argue a claim as to what happened to our missing chef!

Science Standards: 7.P.2B.3; 7.P.2B.4; 7.L.3B.1; 7.L.4A.1

Ecology Survival Challenge



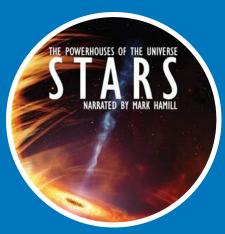
Only Available February - May

NEW Environmental Science and Sustainability Building Three 60-minute learning labs

The supervolcano that is located underneath Yellowstone National Park has erupted and a giant cloud of ash will reach Roper Mountain in 4 hours! How will this natural disaster affect our natural world? Can we use the vital ecosystems here at Roper Mountain to help us survive? Time is of the essence as students use drones and spectro tools to quickly evaluate the health of our ecosystems at Roper Mountain. Students will participate in three labs examining the threats on ecosystems, exploring the importance of soil and water sustainability, and designing solutions for water contamination. Student teams will investigate each of these areas using live animals and test solutions using science engineering principles.

Science Standards: 7.EC.5 A.2; 7.EC.5A.3; 7.S.1A; 7.S.1B.







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MIDDLE SCHOOL ASSEMBLY COMBINATIONS

Schedule Up To 300 Students

10:00am to 12:15pm

Divide your classes into two groups (up to 150 students each) and attend two incredible shows back-to-back in the Auditorium and Hooper Planetarium and Giant Dome Theater. Greenville County students are free. Other students are \$12 for the assembly combination. Lunch will be scheduled from 12:15am-12:40pm.

8th Grade

The New Wave: A Fresh Look at Energy

Hipp Auditorium — Symmes Hall of Science — 60 Minutes

Students will dive into waves that surround us everywhere while exploring wave behaviors and interactions with matter. Exciting real-world demonstrations use light, sound, and electricity to help students understand how waves impact the world they know. Catch the wave and change students' perspective on energy. Science Standards: 8.P.3A.1; 8.P.3A.3

AND

"STARS" The Powerhouses of the Universe

Hooper Planetarium and Giant Dome Theater — 30 Minutes

Every star has a story. Stars release the energy that powers the universe. New stars are created every day, born of vast clouds of gas and dust. Journey to the farthest reaches of our galaxy and experience both the awesome beauty and destructive power of STARS. This dramatic program features the voice talent of Mark Hamill (A.K.A. Luke Skywalker). This program also features a short startalk including the current evening sky.

Science Standards: 8-E.4A.1 and 2; 8.E.4B.1-6

Earth's Place in the Universe - "Live Sky" Visualizations -

Hooper Planetarium and Giant Dome Theater — 30 Minutes

Using the latest in digital night sky simulation we will take a visual tour of the solar system and the Milky Way galaxy. Visuals will illustrate important concepts in astronomy and encourage students to observe the current night sky. Science Standards: 8.E.4A.1, 8.E.4B.1, 8.E.4B.3, 8.E.4B.4







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LIVE FROM ROPER

FREE LIVE LESSONS FROM ROPER MOUNTAIN

BACK BY POPULAR DEMAND!

Since our eLearning Live! lessons were so helpful last year, we are continuing them as free "Live From Roper" offerings. Connect with our specialist via Zoom throughout the year as we offer new interactive lessons every four weeks. Each half hour lesson is unique, engaging, and based on South Carolina and national standards.

Visit RoperMountain.org for these free offerings throughout the year. Multiple virtual visits encouraged.

2nd Grade

1st Quarter - Weather

2nd Quarter - Solids & Liquids

3rd Quarter - Exploring Pushes & Pulls

4th Quarter - Animals & Their Environments

3rd Grade

1st Quarter - Properties & Changes in Matter

2nd Quarter - Energy Transfer: Electricity & Magnetism

3rd Quarter - Earth's Materials & Processes

4th Quarter - Environments & Habitats

4th Grade

1st Quarter - Forms of Energy: Light & Sound

2nd Quarter - Stars & the Solar System

3rd Quarter - Weather & Climate

4th Quarter - Characteristics & Growth of Organisms

& PASS Review

5th Grade

1st Quarter - Matter & Mixtures

2nd Quarter - Changes in Landforms & Oceans

3rd Quarter - Forces & Motion

4th Quarter - Interdependent Relationships

CLICK HERE TO REGISTER

Virtual Field Trips

CLICK HERE FOR DETAILS AND TO REGISTER



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VIRTUAL FIELD TRIPS

Give students the excitement of a field trip to Roper Mountain, even if you can't leave the school! Roper Mountain's dynamic instructors come directly to your classroom through two-way video conferencing technology. Each program is unique, engaging, and based on South Carolina and National standards.

Free for Greenville County Schools. Visit RoperMountain.org for other fees. For questions about Virtual Field Trips, contact Jasmin Poor at jpoor@greenville.k12.sc.us or 864.355.8930.

Click HERE for details on our Virtual Field Trip offerings.







CLICK HERE FOR DETAILS AND TO REGISTER



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SCIENCE ON WHEELS ASSEMBLY PROGRAMS

Bring Roper Mountain Science Center to your school! Our standards based outreach programs are designed to enhance the learning experience of students in grades K-8. Program offerings include large group assembly programs, medium sized animal programs and single class workshop programs. The Starlab Portable Planetarium is currently unavailable due to COVID concerns, but we will update information when it becomes available again.

For questions about Science On Wheels, contact Jennifer Romatelli at jromatelli@greenville.k12.sc.us or 864.355.8940.

Click HERE for our Science on Wheels offerings and fees.



















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PUBLIC EVENTS & PROGRAMS



Open every Friday Night from January through November

Planetarium Shows

Gates open 5:15pm. Purchase tickets online. Tickets purchased are for ONE showtime ONLY.

6:00pm Showtime Includes: Feature Show (changes quarterly)

- SpacePark 360 Virtual Rollercoaster
- Viewing in the Daniel Observatory (Observatory opens at 8:00pm)

7:30pm Showtime Includes: Feature Show (changes quarterly)

- Upstate's Sky Tonight (live sky talk)
- SpacePark 360 Virtual Rollercoaster
- Viewing in the Daniel Observatory

Friday Starry Nights Admission

\$6.00 Adults and Teens

\$5.00 Children Ages 4-12

\$5.00 Sr. Citizens 60 Years Plus

FREE RMSC Members

Pre-purchase tickets online at RoperMountain.org

• Early arrival strongly recommended



Roper Mountain plans to bring back Holiday Laser Shows in Hooper Planetarium this winter.

Check RoperMountain.org in November for more information.



PUBLIC EVENTS & PROGRAMS



September 14 - May 13

Tuesdays through Fridays*- 1:30pm-4:30pm

*excluding days when RMSC is closed for holidays and Greenville County Schools scheduled breaks

Continue your learning adventures throughout the school year in some of your favorite spaces at Roper Mountain as part of our Afternoon Explorations program:

- Explore our new Environmental Science and Sustainability Building, including the highly popular Nature Exchange, Our Water Story, and Sustainable Future exhibits.
- Search for life-size models of both young and adult dinosaurs at our outdoor dinosaur adventure trail.
- Enjoy a stroll through our beautiful Butterfly Garden.
- Engage in creative outdoor play in Wildwood.
- Because of ongoing school programming, Harrison Hall of Science and the Living History Farm will be closed during this time.

Afternoon Explorations Admission

Cash • Check • Credit Cards

\$5.00 Adults, Teens, and Children (age 3 and up)

FREE RMSC Members









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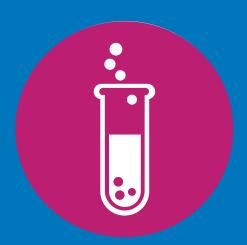
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RoperMountain.org



SUMMER ADVENTURE

Summer Adventure is returning in 2022! Check RoperMountain.org for more information.



Our program is absolutely free for South Carolina public school teachers grades 1-12!

All courses are FREE and include:

- Free science materials
- Innovative ideas and hands-on ideas taught by master science teachers
- Recertification credit



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SCIENCE PLUS INSTITUTE

PROFESSIONAL DEVELOPMENT

Participatory Learning, Understanding, and Sharing



Join us for this year's Science PLUS Institute!

Science PLUS is a professional development program for public SC Science Teachers. Each course is grade specific and focuses on providing hands-on classes emphasizing the SC Science Standards

Fall

Events hosted at RMSC and virtually around the state

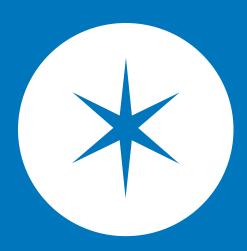
Summer

Week-long hosted at the Roper Mountain Science Center

Housing, lunch, and materials are all provided to participants FREE of charge

How do I learn more?

Click HERE or visit RoperMountain.org and click on the Science PLUS page under the Educators tab.







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RoperMountain.org



PLANNING YOUR VISIT

Confirming Your Visit

Once scheduled, we will mail you a "FIELD TRIP NOTIFICATION." It will list the date, times and learning labs you are assigned. If you are sharing a bus with a second teacher, you should make contact with her/him and be sure the date works around your school schedule. Contact the education office immediately at 864.355.8967 if it does not.

Planning and previsit information, inclement weather policy and a map of Roper Mountain Science Center may be accessed at **RoperMountain.org**. Click on 'Educators' tab, then 'Field Trips' tab.

Schedule Your Bus

After obtaining permission for the field trip, it is important that you schedule a bus as soon as possible. RMSC does NOT schedule buses.

Reminder Notice

Several weeks before your field trip, you will be sent an additional "FIELD TRIP NOTIFICATION" as a reminder of your trip, listing the date of your field trip. Additional materials may be included along with a map of the center's facilities.

Arrival

Most learning labs begin at 9:30am. Please arrive 15 minutes before the learning lab starting time. Note: Some learning lab times may vary.

Picnicking and Lunches

The center now provides lunch as part of your visit. Our new on-site GCS FANS (Food and Nutrition Services) food service provides FREE school meals for all students. There is no longer the need for students to bring bag lunches or use an outside food vendor. Teachers and chaperones may purchase full meals for \$4.10, cash required. Click here for the menu. For questions about your meal, contact Amanda Drew at adrew@greenville.k12.sc.us or 864.355.0806.

Classes will be assigned a picnic location.

Cancellation

If you must cancel a learning lab or visit, please contact the education office IMMEDIATELY at 355-8967. We will attempt to reschedule your visit, but it may not be possible.

Chaperones

We request that teachers bring one chaperone per class. Chaperones: please do not bring additional students not in the registered class.

Pre-visit

The educational value of your visit will be improved if you prepare your students in advance. We recommend you do the following:

- \bullet Explain the purpose of the field trip to students
- Describe the schedule of activities for the day.
- · Review appropriate vocabulary.
- Utilize "Live from Roper" lessons as pre/post virtual visits.

Class Size

- Planetarium Programs: Max of 162 people (students and adults)
- All Other Learning labs: 1 Class ONLY (plus teacher and one chaperone)
- Teachers are not allowed to combine two classes into one learning lab.

Continued on next page.







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PLANNING YOUR VISIT

Continued from previous page.

Special Education/Challenge Classes

All learning labs are available to all students in the grade levels shown in the guide. To assist our instructors in preparing for your class, please note the grade level at which your students work, as well as any special needs they may require.

Home Schools: Guidelines for Scheduling

Individual home schools must request a visit as a class through the **home school association** of which they are members. Home school association classes must have a minimum of 12 students and no more than 27 students, plus a teacher and appropriate number of chaperones. The home school association's teacher is responsible for coordinating the field trip and supervision of all students. Students must be **grade appropriate** to the learning labs being requested. Requests are subject to the deadline listed in this guide. The center cannot accept requests from individual home school parents, nor can we be responsible for organizing a class made up of home school students. Home schools who are members of associations outside of Greenville County will be charged the learning lab costs.

Roper Mountain Science Center Learning Lab Costs

Greenville County Schools — FREE Public, Private, and Home School AssociationsOne or more Learning Labs — Free

Greenville County Charter Schools

**Two or more Learning Labs — \$15 per student Middle School Assembly Combo — \$12 per student

Schools Outside of Greenville County

Two or more Learning Labs — \$15 per student Middle School Assembly Combo — \$12 per student

All Teachers & Chaperones — FREE

Schools will be invoiced on the day of their visit. The center reserves the right to ask school classes outside of Greenville County to post a deposit for their scheduled learning labs. Deposits are refundable up to 20 business days before the visit.

We CANNOT accept credit card payments over the telephone.

Contact Information

Education Office 864.355.8967 **Address** 402 Roper Mountain Road Greenville, SC 29615

RoperMountain.org



COMMUNITY PARTNERS

We gratefully acknowledge these individuals, foundations, organizations and corporations whose annual gifts have helped to support Roper Mountain Science Center.

VISIONARY - \$20,000+

ABB

Bosch Community Fund The Daniel-Mickel Foundation **Duke Energy Foundation** Fluor Golf For Greenville Greater Greenville Sanitation Greenville County Litter Prevention Greenville Evening Rotary Charities, Inc. Greenville Water John I. Smith Charities The Late Ernest and Betty Lathem Lockheed Martin Corporation Michelin Charity Golf Tournament Piedmont Arthritis Clinic, PA ReWa **SCETV** Symmes Foundation

EXPLORER - \$15,000

BMW Manufacturing Fluor Foundation GE

VOYAGER - \$10.000

Tom and Linda Hamilton MetroConnects Ron and Tommie Reece

Visit RoperMountain.org for details on how you can become a community partner!



Support Roper Mountain and enjoy benefits by becoming a member!

Benefits Include:

- •Free admission to Summer Adventure, Starry Nights and select special events
- •Discounted admission to Planetarium Laser Shows
- •Summer Camp early notification, discounts and early registration
- •Program and events discounts as noted on the website
- •Admission to over 300 science centers and museums world wide. Visit the Association of Science-Technology Centers and choose Passport Program to find participating facilities

Visit RoperMountain.org to join today!



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2021-2022 Scheduling Request Form

Please note:

For Grades 4 - 8 you will be scheduled for TWO or more learning labs/day unless you check HERE _ indicating you only want one learning lab.

Mail form to:

Roper Mountain Science Center **Education Office** 402 Roper Mountain Road, Greenville, SC 29615 Or email form to:

dogle@greenville.k12.sc.us

Priority Registration Deadline September 10, 2021

Due to uncertain cirumstances, we will accept registrations after priority deadline expires. School: District: If not Greenville County Public School Mailing/Billing Address: Required if not Greenville County Public School State: Zip: Phone: _____ Fax: _____ Please rank (1-9) the months you prefer to visit. Do not rank months you are not willing to attend ____ Sept. ____ Oct. ___ Nov. ___ Dec. ___ Jan. ___ Feb. ___ Mar. ___ Apr. ___ May **Teacher Two** (sharing bus) **Teacher One** Name: _____ E-mail: Please print clearly _____ E-mail: Please print clearly _____ Grade: ____ # Students: ____ Check here for no picnic Grade: ____ # Students: ____ Check here for no picnic **First Grade** First Grade May Only May Only ☐ 1. Exploring Light & Shadow or ☐ 2. Down on the Farm or ☐ 1. Exploring Light & Shadow or ☐ 2. Down on the Farm or 3. Natural Science Adventure 3. Natural Science Adventure **Second Grade Second Grade** Option A or Option B or Option C Option A or Option B or Option C Third Grade **Third Grade** Natural Science Discovery Day or ☐ Natural Science Discovery Day **OR** Farm and Science Discovery Day Farm and Science Discovery Day Fourth - Eighth (please rank) Fourth - Eighth (please rank) List learning labs in YOUR grade level (Grades 4 - 8) you would List learning labs in YOUR grade level (Grades 4 — 8) you would like to attend in order of preference with 1 being your first choice. like to attend in order of preference with 1 being your first choice. Please **do not** list learning labs you aren't willing to attend. Please **do not** list learning labs you aren't willing to attend. **Special education teachers: Special education teachers:** Please list the instructional level of students and any special requirements. Please list the instructional level of students and any special requirements.