

# **Roper Mountain**



2024 - 2025 Educator's Directory Standards Based Learning Labs in Science and Social Studies

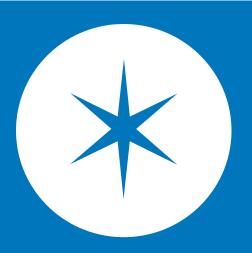
Priority registration deadline for on-site learning labs is August 23, 2024

A 402 Roper Mountain Road Greenville, SC 29615

**P** 864.355.8900

## RoperMountain.org







# ROPER MOUNTAIN SCIENCE CENTER

## Welcome!

If you want to ignite curiosity and give your students the best field trip possible, then we have an experience for you! New learning labs, unique facilities, and amazing educators will bring learning to life. Check out the many new offerings we have in this directory.

In addition to your trip to the Mountain, you can connect with us multiple times over the course of the year through "Live From Roper" virtual lessons and Science On Wheels. No matter if it is at Roper Mountain or at your school, students will benefit from engaging lessons.

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

Michael Weeks Director







A 402 Roper Mountain Road Greenville, SC 29615

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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 Starry Nights planetarium shows, Afternoon Explorations and special events throughout the year. Call the Education Office at 864.355.8967 for elementary or 864.355.8925 for middle schoolor or visit **RoperMountain.org** for information on all of our services.

## **Standards-Based Learning Labs**

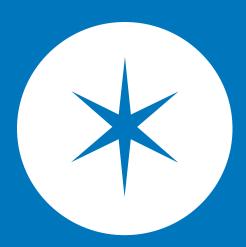
Learning labs held at both the center and in schools are designed to support the South Carolina Curriculum Standards in science and social studies.

## **How To Schedule On-Site Field Trips**

- Teachers must submit a request form by the priority deadline of August 23, 2024. We will accept registrations after priority deadline expires, however they will be scheduled last.
- Please fill out forms for each teacher and class (ex. 6 Classes = 3 Forms)...
- All teachers on a grade-level should submit requests together if they want to be scheduled together (if possible). Include Special Education classes if needed.
- We use fillable PDF registration. Registration forms can be submitted electronically or scanned and emailed to our Scheduling Office at abuckmaster@greenville.k12.sc.us for elementary and liphilli@greenville.k12.sc.us for middle school.
- Requests received after August 23, 2024 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 27).
- Lunches are now available during your visit. Our GCS FANS (Food and Nutrition Services) Connections Café provides school meals at no charge for students. Adults meals may be purchased. GCS teachers may use their My School Bucks account for café purchases. For all other purchases, cash is required. An ATM is available onsite for your convenience. Lunch for adults is included in the fee for schools outside Greenville County. Click here for the menu and pricing.

For questions about your meal, contact Amanda Perez at aperez@greenville.k12.sc.us or 864.355.0806.

- $\bullet$  On the request form, rank the group (1st 5th) or choose the programs (6th 8th) you would like to attend.
- 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 for elementary or 864.355.8925 for middle school.
- 4th, 6th and 7th grade classes may request a second visit to Roper Mountain.
   All other grades may schedule one on-site visit per year, but grades 2-5
   encouraged to schedule as many "Live from Roper" virtual lessons as they
   would like.





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# **PLANNING YOUR VISIT**

#### **Confirming Your Visit**

When your scheduling form is received, you will receive an acknowledgement email. When our scheduler has a programming date to offer, you will receive another email with the details. Please note: if your preferred time of year to visit is the spring semester, you many not receive an offered date for several weeks after your acknowledgement. We will be working on filling fall dates before we move into the spring.

When your offer is sent, please respond to that email as quickly as possible to confirm your date, or request an alternate. If you are sharing a bus with other teachers, please be sure to communicate and make sure the date works for everyone.

After we have entered your confirmed date into our system, you will receive a FIELD TRIP CONFIRMATION letter with detailed dates, times and learning labs scheduled. You will also receive a lunch menu and a map of our facilities. Please be sure the number of students in your group is accurate, or contact your scheduler if you need to make any changes.

Planning and previsit information, inclement weather policy and a map of Roper Mountain Science Center may be accessed at RoperMountain.org.

#### **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 REMINDER" for your 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**

Lunches are now available during your visit. Our GCS FANS (Food and Nutrition Services) Connections Café provides school meals at no charge for students. Adults meals may be purchased. GCS teachers may use their My School Bucks account for café purchases. For all other purchases, cash is required. An ATM is available onsite for your convenience. Lunch for adults is included in the fee for schools outside Greenville County. Click here for the menu and pricing.

For questions about your meal, contact Amanda Perez at aperez@greenville.k12.sc.us or 864.355.0806.

#### **Cancellation**

If you must cancel a learning lab or visit, please cContact the education office IMMEDIATELY at 864.355.8967 for elementary or 864.355.8925 for middle school. We will attempt to reschedule your visit, but it may not be possible.

#### **Chaperones**

We request that teachers bring no more than two chaperones per class. No additional students or siblings not in the registered class may accompany chaperones. Chaperones should check in at your school for their credentials. RMSC is not able to check in your chaperones at our location.

#### **Pre-visit**

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

- 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.

Continued on next page.





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# **PLANNING YOUR VISIT**

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#### **Class Size**

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

#### **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 per grade level. **We allow 1 teacher and 2 chaperones per class.** The home school association's teacher is responsible for coordinating the field trip and supervision of all students. Students must be **age and grade appropriate** (no siblings or younger children, including babies) 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.

We are unable to provide programming for multi-age groups in our individual learning labs for elementary ages. All classes must meet the minimum standards above. For middle schools, you may combine your students in grades 6, 7 and 8 for Planetarium/Assembly combination programs.

#### **Roper Mountain Science Center Learning Lab Costs**

**Greenville County Public Schools — FREE** 

Public, Private, and Home School Associations Learning Labs — Free

#### **Greenville County Charter Schools**

Learning Labs — \$15 per student, lunch included Middle School Assembly Combo — \$12 per student, lunch included

#### **Schools Outside of Greenville County**

Learning Labs — \$15 per student, lunch included Middle School Assembly Combo — \$12 per student, lunch included

#### 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 do not accept checks or credit card payments on the day of your trip. Your school will be invoiced AFTER your visit.

We CANNOT accept credit card payments over the telephone.

## **Contact Information**

**Education Office** 

864.355.8967 for elementary or 864.355.8925 for middle school

#### **Address**

402 Roper Mountain Road Greenville, SC 29615





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# FIRST GRADE

## **Year-Round Adventure**

This 3-part rotation will move around to different parts of Roper Mountain in order to provide students with an exciting overview of the first grade science standards. Students will enjoy a Planetarium show, Auditorium live demonstration and visit the Living History Farm or Environmental Science Building.

**SPACE LIMITED** 

## Your action packed adventure day will include:

#### **WOW Science**

Hipp Auditorium — 35 Minutes

Our science show extravaganza will highlight many first grade science standards. Be dazzled by our sound and light demonstrations-lasers, mirrors, tuning forks and soaring ping pong balls-we have them all! Marvel at animals and their offspring! Students will leave inspired and excited about the wonders of science!

Science Standards: 1-PS4-1, 1-PS4-2, 1-PS4-3, 1-LS1-2, 1-LS3-1

#### AND

#### **Magic Tree House: Space Mission**

Hooper Planetarium and Giant Dome Theater— 45 Minutes

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 funfilled journey to discover the secrets of the Sun, Moon, planets, space travel and more.

Science Standards: 1-ESS1-1

#### AND

#### **Farm Discovery**

Living History Farm — 60 Minutes

What came first? The chicken or the egg!? Join us for a fun chicken business opportunity as we observe patterns in our chickens' behavior that benefit their offspring and how most young are like, but not exactly like, their parents. In our gardens and historic buildings we will explore goods and services over time while using our math skills to determine if our "chicken business" will be a success.

Science Standards: 1-LS1-2, 1-LS3-1 Social Studies: 1.E.2

#### OR

#### **Animal Powers**

Environmental Science Building — 30 Minutes

Animals have the coolest super powers! Using live animals, students will learn how animals use their bodies and powers to help them survive, grow, and meet their needs.

Science Standards: 1-LS1-1

#### **AND**

#### **Nature by Design**

Environmental Science Building — 30 Minutes

Students will learn about biomimicry through real life examples of how humans copy nature. Using engineering practices, students will design and test flight solutions, inspired by plant and animal structures, in our wind tunnels. Science Standard: 1-LS1-1





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# **FIRST GRADE**

## First Grade "May Days"

An exciting day 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 "May Days" will be scheduled on a first come, first served basis.

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

## 1. Light & Sound

Only Available in May

In this day-long exploration, students will discover the properties of light and sound 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 funfilled journey to discover the secrets of the Sun, Moon, planets, space travel and more.

Science Standards: 1-ESS1-1

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

#### **Turn It Up**

Symmes Hall of Science — 30 Minutes

The sound system in our city park is too quiet for concerts! Students will help us solve this problem by testing a variety of materials and deciding how each affects our speaker's sound. After this hands-on testing, students will select the best material to improve the sound system. Along the way they will explore vibrations, compare different tuning forks, and experience sound in a whole new way!

Science Standards: 1-PS4-1

#### **Recycling Sense**

Symmes Hall of Science — 30 Minutes

Help us clean up the playground! This hands-on experience will demonstrate how light interacts through different real-world materials (translucent, transparent, and opaque). Students will investigate materials using their eyes and a flashlight. Then they will determine which materials are recyclable using our special light sensor. They will be rewarded with an illuminating surprise! Science Standards: 1-PS4-3

#### **Garden Party**

Symmes Hall of Science — 30 Minutes

Seize the daylight! Students will use an interactive shadow box to explore the patterns of day and night and observe what happens when objects block the path of light. They will use their observations to determine the best place for a garden in the park to help the plants grow big and strong!

Science Standards: 1-PS4-2, 1-PS4-3, 1-ESS1-1

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# FIRST GRADE

Continued from previous page.

## OR

## 2. Down on the Farm

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 our community in our 200 year old cabins. They will also 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 funfilled 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:

#### **Growing Garden**

Living History Farm — 25 Minutes

Discover the structures that help plants grow and reproduce while helping with traditional children's chores as students learn what it takes to make a garden grow. In the case of severe weather, this lesson will take place in the one room schoolhouse.

Science Standard: 1-LS1-1 Social Studies Standards: 1.G.3, 1.E.2

#### **Cabin Life in the 1800s**

Living History Farm — 25 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.

Social Studies Standards: 1.H.3

#### **Farm Animal Fun**

Living History Farm − 25 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.

Social Studies Standards: 1.E.2. 1.H.3

Continued on next page.





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# **FIRST GRADE**

Continued from previous page.

## OR

## 3. Natural Science

Only Available in May (half-day)

Discover the wonders of nature as you spend almost 2 hours exploring our Harrison Hall of Natural Science while rotating through four exciting, standardsbased 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.

Science Standards: 1-LS-1, 1-LS1-2, 1-LS-3-1

#### The Natural Science Grouping includes the following half-day of mini lessons:

#### **Creatures by the Seashore**

Harrison Hall of Natural Science

Students will discover how coastal creatures survive as they explore the aguariums and interact with a variety of marine animals in our touch tanks.

#### **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.

#### **South Carolina Environments**

Harrison Hall of Natural Science

While exploring the Ecology Lab, students will examine how animals survive in a variety of SC environments including mountain streams, beaver ponds, cypress swamps, and salt marshes.

#### **Island Survival**

Harrison Hall of Natural Science

Students will discover the body differences and similarities among turtles that help them survive island life.

Sponsored by: BOSCH







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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**

#### The Great Undersea Adventure of Barney and Beenie

This fun, educational, and entertaining show for children will allow students to make observations about the diversity of life in the Ocean habitat.. Two friends, Barney and Beenie, take care of the cleanliness of their lagoon. Many adventures await them, including the rescue of a small turtle stuck in a plastic net. At night, the friends learn the constellations.

Science Standards: 2-LS4-1

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

Option A (see lab descriptions on following page)

**Erosion Commotion** 

**AND** 

**Animal Explorations** 

Option B (see lab descriptions on following page)

**Nature Quest** 

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**

Continued from previous page.

Along with the "The Great Undersea Adventure" planetarium show, choose one of the following three options:

# Option A - Environmental Science Building or Harrison Hall of Natural Science

#### **Erosion Commotion**

Using stream tables, students will make it rain and then flood to observe how water changes the shape of the land and causes erosion commotion to a neighborhood community. After observing the rain events, teams will need to engineer solutions to prevent the neighborhood from washing away. Science Standard: 2-ESS2-1

#### **Animal Explorations**

Students will compare the diversity of animals that live in our pond and forest habitats on Roper Mountain, such as frogs, salamanders, insects, and snakes. By observing the structures of live animals, students can then infer how the structures help them function and survive in certain habitats.

Science Standard: 2-LS4-1

# Option B - Harrison Hall of Natural Science

Students will enjoy a guided nature walk through different environments to discover how animals and plants depend upon their habitats to survive. Emphasis will be placed on diversity of life found in land and in the water. Science Standard: 2-LS4-1

(NOTE: in the event of inclement weather, and in winter students will remain indoors and explore different habitats in Harrison Hall including the Marine Lab and/or the Rainforest.)

#### Surviving In the Wild

From the mountains to the sea, students will explore biodiversity from around the world to discover how animals survive in their awesome habitats. Science Standard: 2-LS4-1

## Option C - Living History Farm

#### **Our Home: Then & Now**

Explore change over time in the way Americans live, work and play. Using artifacts from the 1800s, students will assist with tasks around our historic log cabins, learn about historic clothes and toys, 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 rural life by participating in 1800s farm chores, noting patterns of continuity and change as we observe plant needs, pollination, and seed dispersal while we work in our heritage garden; and visit our one-room schoolhouse; and care for our farm animals. Social Studies Standards: 2.H.3, 2.G.3 Science Standards: 2-LS2-1, 2-LS2-2





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# **THIRD GRADE**

# **Natural Science Discovery Day**

9:30am to 1:15pm

You will receive four 40-minute learning labs in the following "Discover" group.

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

## **Discover the Following:**

#### **Terrific Traits**

Harrison Hall of Natural Science

Through handling and closely examining a variety of live animals, students will discover ways in which these unique organisms have special traits that help them survive in their environments.

Science Standards 3-LS4-2 OR 3-LS4-3

#### **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 dinosaur trail.

Science Standards 3-LS4-1

#### **Survivor**

Harrison Hall of Natural Science

"The tribe has spoken..." Which animals have what it takes to thrive on islands? Through hands on games and activities, students will learn about unique traits as well as difficult challenges that animals face that could determine whether or not they thrive, struggle, or fail to survive. Students will also have the opportunity to interact with live animals that call the islands their home. Science Standards: 3-LS3-2, 3-LS4-2, 3-LS4-3

Sponsored by: (A) BOSCH

#### **Life Cycles**

Harrison Hall of Natural Science

All organisms go through changes of growth and development in their life cycles. In this lesson, students will observe differences in life cycles from young to adult using live animals. Students will compare the unique and diverse life cycles among insects, reptiles, amphibians, marine creatures, and so much

Science Standards 3-LS1-1





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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 40-minute learning labs. Learning labs support both the Science and Social Studies state standards. **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**

Living History Farm

By working together to decipher clues, 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.

Social Studies Standard: 3.5.3.HS, 3.4.1.PR

#### **Rainforest Adventures**

Harrison Hall of Natural Science

Come experience the plants and animals that call the tropical rainforest habitat their home. The lesson will include learning about specific traits that plants and animals have that help them survive in the Roper Mountain rainforest and classroom.

Science Standard: 3-LS4-3
Sponsored by: (A) BOSCH

#### **Marine Exploration**

Harrison Hall of Natural Science

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

Science Standards 3-LS4-2 OR 3-LS4-3





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# **FOURTH GRADE**

You will receive three of the four 55-minute learning labs in the "experience" grouping.

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

# Physical Science Experience Light Heist

Symmes Hall of Science — 55 Minutes

There's been a theft! In this "whodunit" lab, students will use properties of light to discover which suspect stole a precious sculpture. Working as detectives, students will use special equipment to investigate shadows, light mazes, light reflection, and color filters. The evidence will shine a light on the guilty party! Science Standards: 4-PS4-2.

Sponsored by: Scansource

#### **Powerful Decisions**

Symmes Hall of Science — 55 Minutes

It's electric! After exploring different energy transformations, students will build circuits and try to power multiple devices simultaneously. Small groups will then wire their individual "homes" with a limited supply of electricity, powering the devices they deem most important. What will you power in your home? Science Standards: 4-PS3-2, 4-PS3-4

Sponsored by:

#### **Need for Speed**

Symmes Hall of Science — 55 Minutes

Full speed ahead! In this "fast-paced" lab, students will collect real-time motion data from specialized cars and instantaneously view the resulting graphs. Using their data, students will examine the relationship of speed to energy and help Meevil the Weevil complete several feats. If you're a thrill seeker, this challenge is for you!

Science Standards: 4-PS3-1, 4-PS3-3

#### **Patterns Lab Escape**

Symmes Hall of Science — 55 Minutes

Did you get the message? Students will be volunteers in Dr. Patty Turner's lab and help her research how patterns are used to transmit information. Using patterns of light, sound, morse code, and more, students will decipher codes and unlock secrets of communication. Can you solve the puzzles and decrypt the final challenge in time?

Science Standards: 4-PS4-3

Sponsored by:



Continued on next page.





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# **FOURTH GRADE**

Continued from previous page.

You will receive three of the four 55-minute learning labs in the "experience" grouping.

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

# Life Science and History Experience Coastal Catastrophes

Environmental Science and Sustainability Building — 55 Minutes

They huff and puff and blow your beaches away. Each year hurricanes, earthquakes, and floods are responsible for massive changes to coast lines all over the world. Students will combat various natural disasters as they test a variety of beach erosion solutions and design earthquake engineering solutions. Science Standards: 4-ESS2-1, 4-ESS3-2

Sponsored by: Williken

#### **The 6th Sense**

Harrison Hall of Natural Science — 55 Minutes

*I see living animals.* How do snakes hunt underground? How do owls use night vision to survive? How do bats find their food at night? Students will answer these questions and so many more as they explore the world and solve animal sized problems using a variety of animal sixth senses!

Science Standard: 4-LS1-2

#### **Creepy Crawlies**

Environmental Science and Sustainability Building — 55 Minutes

"Venom glands, slimy skin, and armored bodies are just a few of the superhero like structures students will explore in this lesson while getting up close to animals that creep, slither, and crawl. "

Science Standards: 4-LS1-1

#### **American Revolutionaries**

Living History Farm — 55 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!

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





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# FIFTH GRADE

#### 9:30am to 1:15pm

In addition to two different 55 minute learning labs, students will discover Earth's Place in the Universe in our immersive full-dome Planetarium.

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

Hooper Planetarium and Giant Dome Theater — 55 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. Explore space travel to our moon... and beyond! Science Standards 5.ESS1-1, 5.ESS1-2

#### IN ADDITION

The astronomer will use the unique, full-dome planetarium program to explore stellar distances and apparent brightness, patterns of day and night, and the seasonal appearance of some stars in the night sky. Science Standards: 5-ESS1-1, 5-ESS-1-2

Along with the Planetarium experience, choose from one of the following two explorations:

# 1. Matter Exploration

(see lab descriptions on following page)

**Revealing Reactions** 

**AND** 

Where's the Matter

## 2. Earth and Ecosystem Exploration

(see lab descriptions on following page)

**Conservation Cadets** 

AND

**Eco Detectives** 

Continued on next page.





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# FIFTH GRADE

Continued from previous page.

Along with the Planetarium experience, choose from one of the following two explorations:

## 1. Matter Exploration

#### **Revealing Reactions**

Symmes Hall of Science — 55 Minutes

Be the detective! What happened at the food warehouse? Observe active chemical reactions under a microscope and compare physical and chemical properties to see if a new substance formed. Use these clues to reveal the cause of a mysterious fire!

Science Standard: 5-PS1-3, 5-PS1-4

Sponsored by: **FLUOR** 

#### **AND**

#### Where's the Matter?

Symmes Hall of Science — 55 Minutes

Can your students solve the problem of the missing materials? In this lab, students will investigate the conservation of matter by observing different reactions on a scale- did the amount of matter change? Where did it go? Students will determine where the missing material went!

Science Standards: 5-PS1-2

## OR

## 2. Earth and Ecosystem Exploration

#### **Conservation Cadets**

Using interactive Enviroscape models, students will discover how human impacts such as lawn fertilizer, litter, and even your own dog's waste can affect our land and water. They will also test solutions to these problems to help save the Earth. Finally, students will have the opportunity to see how Earth's systems interact through our amazing AR Topographic Sand Tables.

Science Standards: 5-ESS3-1, 5-ESS2-1

#### **AND**

#### **Eco Detectives**

Environmental Science and Sustainability Building — 55 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 will be used to infer what kind of consumers live in our ecosystems and what they depend upon for food.

Science Standards: 5-LS2-1

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# FIFTH GRADE

# "Sea" It In A Day (December and January 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.

#### **Island Explorers**

Harrison Hall of Natural Science

Students will explore the interactions of geosphere, hydrosphere and biosphere of a distant island as they study live animals, and use technology such as augmented reality sand tables and remotely operated vehicles to discover how life prevails under such unique and sometimes harsh conditions.

Science Standard: 5-ESS2-1



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#### 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-ESS2-2, 5-LS2-1

#### **Coral Reefs**

Harrison Hall of Natural Science

In this immersive lesson, students discover the fragile, yet important role the coral reef ecosystem plays in the health of our oceans. Through hands-on interaction with live ocean animals in our touch tanks, students will discover the variety of animals the ocean supports.

Science Standards: 5-LS2-1

#### **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 plastic dilemma in our oceans. Science Standards 5-LS2-1





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# MIDDLE SCHOOL ASSEMBLY COMBINATIONS

## **EXPLORING EARTH'S SYSTEMS**

# Schedule up to 300 students on the same day 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 12:15pm - 12:45pm.

## **6th Grade**

#### **Clouds, Climates and Catastrophes!**

Hipp Auditorium — Symmes Hall of Science — 60 Minutes

Join us as we delve into the intricate connections between water, energy, and Earth, shaping the weather we encounter daily. Witness the spectacle of giant clouds forming, lightning crackling from our Van De Graaff Generator, real-time temperature shifts captured by an infrared camera, and other captivating demonstrations. Students will gain insights into the atmosphere, water cycle, the impact of warm and cold air masses on weather patterns, and their broader effects on regional climates.

Science Standards: 6-ESS2-4, 6-ESS2-5, 6-ESS2-6

## **AND** CHOOSE 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-ESS2-1, 6-ESS2-4, 6-ESS2-5, 6-ESS2-6

Looking for "Hands-On Labs"? Check out the next page.





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# MIDDLE SCHOOL HANDS-ON LEARNING LABS

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

Divide your classes into six groups to rotate through three different hands-on learning labs. Lunch will be scheduled as part of your visit.

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

#### **6th Grade Physical Science Lab Experience**

# Hands-On Engineering: Shape the Future of Roper Mountain



Only Available September - January - April

Symmes Hall of Science

Three 55-minute learning labs

Calling all engineering enthusiasts! We need your creative skills to brainstorm exciting ways to elevate the Roper Mountain experience for students and visitors. Join us in this adventure where your class can dive into hands-on activities with our cool materials and tools, all while investigating scientific concepts of matter, energy and waves!

• Explore heat transfer using thermal cameras and experiment with insulators and conductors to design a safe glove to handle dry ice.

Sponsored by: **FLUOR**.

 Program LEGO Spike Prime robots to simulate animal responses to different stimuli, linking robotics with biological concepts and creating an interactive "Robot Zoo."

Sponsored by: **FLUOR** 

• Experiment with speakers and lights to optimize sound and light design across Roper Mountain.

Sponsored by:

Milliber.

Science Standards: 6-PS1-4, 6-PS3-3, 6-LS1-8, 6-PS4-2

## OR

## 6th Grade Life and Earth Science Lab Experience

#### **Cataclysmic Collisions**

Only Available January - April

Environmental Science and Sustainability Building

Three 55-minute learning labs

Crater Chronicles, Cellular Collapse, Bones From the Blast - Asteroids and comets in Earth's long history have struck earth creating cataclysmic events and causing mass extinctions. Paleontologist apprentices will be needed and trained to help look at present life forms, fossils of past life, and other clues to what events from these geoscience processes caused the extinction of most life forms - from one-celled organisms to dinosaurs. These apprentices will also model those impacts from catastrophic events that changed the earth's surface from the rising of large peaks to volcanoes and meteorite/comet impacts. Science Standards: 6-LS1-1, 6-LS1-2, 6-ESS1-4, 6-ESS2-2

Want to bring more students at once? Check out the Middle School Assemblycombination (page 16).





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# MIDDLE SCHOOL ASSEMBLY COMBINATIONS

MATTER, ENERGY AND ECOSYSTEMS

# Schedule up to 300 students on the same day 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 12:15pm-12:45pm.

## 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! Witness fire, explosions and extreme temperatures. We'll explore physical properties, the law of conservation of matter, and witness the effects of dangerous temperatures 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-PSI-2, 7-PSI-5

## **AND**

#### "Habitat Earth" - Living in a Connected World

Hooper Planetarium and Giant Dome Theater - 60 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-LS2-1, 7-LS2-2, 7-LS2-3

Looking for "Hands-On Labs"? Check out the next page.





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# MIDDLE SCHOOL HANDS-ON LEARNING LABS

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

Divide your classes into six groups to rotate through three different hands on learning labs. Lunch will be scheduled as part of your visit.

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

## 7th Grade Matter Lab Experience:

#### **Chemistry: Make It Better With EcoSolutions**

Only Available September - January

Symmes Hall of Science

Three 55-minute learning labs

Our products make the world better! Working through three separate investigations, students will:

- Generate hydrogen gas from water to use as a clean fuel
- Identify chemicals that were left unlabeled in an abandoned lab for safe disposal
- Test a natural, biodegradable alternative to a synthetic product

Throughout these investigations, students will make long-term decisions that help the environment while also maximizing profits. We need minds like yours to solve today's problems for a better tomorrow.

Science Standards: 7-PS1-2, 7-PS1-3, 7-PS1-5

Sponsored by: **FLUOR**<sub>®</sub>

## OR

## 7th Grade Ecosystem Lab Experience:

#### **Ecology Survival Challenge**

Only Available January - April

Environmental Science and Sustainability Building

Three 55-minute learning labs

Animal Threats, Chemical Threats, Eco Threats - The supervolcano that is located underneath Yellowstone National Park has erupted and a giant cloud of ash will reach Roper Mountain in 4 hours! Time is of the essence as students investigate animal behaviors, water quality, and limited resources to see how the environment would be affected by such a natural disaster.

Science Standards: 7-LS2-4, 7-LS2-1

Want to bring more students at once? Check out the Middle School Assembly combination (page 18).





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# MIDDLE SCHOOL ASSEMBLY COMBINATIONS

MOTION, WAVES, AND EARTH'S PLACE IN THE UNIVERSE

# Schedule up to 300 students on the same day 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 12:15pm - 12:45pm.

## 8th Grade

#### Force, Impacts, and Energy

Hipp Auditorium — Symmes Hall of Science — 60 Minutes

The Force is Right! You could be the next contestant on our physical science themed game show! Check out our most thrilling physics demonstrations of waves, collisions, and forces! We'll observe and analyze collisions--some involving audience members! Get ready to see sound waves dancing--in fire! We will also test a giant electromagnet! How much can it lift? Get ready to see how much fun physics can be!

Science Standards: 8-PS2-1, 8-PS2-2, 8-PS2-3, 8-PS4-1

## **AND**

#### "STARS" The Powerhouse 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 dynamic program features the voice talent of Mark Hamill (A.K.A. Luke Skywalker). This program also features a short sky-talk including the current evening sky.

Science Standards: 8-ESS1-1

## **AND**

#### 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 journey to investigate the mysteries of our solar system and beyond. Why does Earth stay in orbit? How often do the moon phases repeat? What is the difference between a lunar and a solar eclipse? We'll explore the answers to these questions and more in our immersive, giant 50-foot curved dome of the Planetarium. Students will walk away with a greater understanding of the Earth and Space Science Performance Expectations after this specially aligned lesson. Science Standards: 8.ESS1-1, 8.ESS1-2, 8.ESS1-3





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## RoperMountain.org



# LIVE FROM ROPER

FREE LIVE LESSONS FROM ROPER MOUNTAIN

#### **BACK BY POPULAR DEMAND!**

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 - Landforms of Earth & Magic of Water

2nd Quarter - Changes Around Us & Preventing Erosion

3rd Quarter - Observing Matter &

**Heating and Cooling Matter** 

4th Quarter - How Plants Grow & How Seeds Travel

## **3rd Grade**

1st Quarter - Balancing Forces & Magic of Magnets

2nd Quarter - Surviving the Seasons & Survival in Numbers

3rd Quarter - Fossils & What Does It Take to Survive?

4th Quarter - Weather Predictions

& Severe Weather Solutions

## 4th Grade

1st Quarter - Energy Transfer &

The Power of Natural Resources

2nd Quarter - The Power of Erosion & Waves in Action

3rd Quarter - Behaviors of Light &

**Cause and Effect of Motion** 

4th Quarter - Carnivorous Plants & Animal Senses

## 5th Grade

1st Quarter - Properties of Matter & Slime Time

2nd Quarter - Who Needs Dirt? & The Circle of Life

3rd Quarter - Saltmarsh Discovery & Impact of

**Community Growth on the Environment** 

4th Quarter - Gravitational Pull &

The Night's Sky Throughout the Seasons

**CLICK HERE TO REGISTER** 



CLICK HERE FOR DETAILS AND TO REGISTER

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# SCIENCE ON WHEELS OUTREACH 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 K5-5. Program offerings include large group assembly programs as well as single class programs such as our animal classroom programs and our portable planetarium.

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

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**

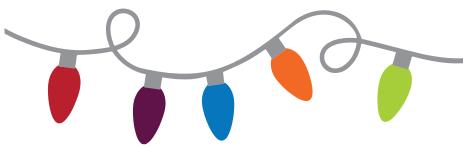
Purchase tickets online. Tickets purchased are for ONE showtime ONLY.

# 4:30pm, 6:00pm and 7:30pm Showtimes Include: Feature Show (changes quarterly)

- SpacePark 360 Virtual Rollercoaster
- Viewing in the Daniel Observatory (Observatory opens at 6:45pm)

Visit RoperMountain.org for show details and to pre-purchase tickets

• Early arrival strongly recommended



# **Holiday Laser Shows**

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 12 - May 9

## Thursdays and Fridays\*- 1:30pm-5:00pm

\*excluding days when RMSC is closed for Greenville County Schools Winter & Spring 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:

- Interact with exhibits in the Environmental Science and Sustainability Building including the highly popular Nature Exchange.
- Encounter life-size prehistoric creatures on the Dinosaur Adventure Trail.
- Enjoy a stroll through our beautiful Butterfly Garden.
- Engage in creative outdoor play in Wildwood.

## **Afternoon Explorations Admission**

Cash • Check • Credit Cards

**\$8.00** Adults

\$7.00 Children Ages 3-12 (age 3 and up)

FREE RMSC Members







# SUMMER ADVENTURE

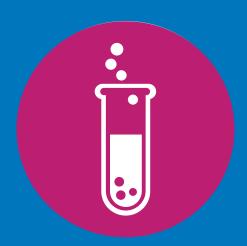
Summer Adventure is returning May 31, 2025 featuring a new exhibit Wild Kratts: Creature Powers! Check RoperMountain.org for more information.

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Our program is absolutely free for South Carolina public school teachers grades K-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 and Spring**

Mini-PLUS one-day events hosted at RMSC

#### 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.



# **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+**

BOSCH Community Fund The Daniel-Mickel Foundation Dodge Industrial, Inc. Fluor Foundation Fluor Golf for Greenville Greenville Water Lockheed Martin Corporation ReWa South Carolina Farm Bureau

#### **EXPLORER - \$15.000**

BMW Manufacturing GE Vernova SEW-FURODRIVE

#### **VOYAGER - \$10,000**

Audacy Communications Greenville Federal Credit Union Milliken & Company

#### ADVENTURER - \$5,000

AFL Global
Bank of Travelers Rest
Bannon Foundation
Brian Cauthen
Contec, Inc.
HDR
Koops, Inc.
Ryobi Power Tools
TD Charitable Foundation
Upcountry Fiber Foundation

#### **INNOVATOR - \$2,500**

Greenville Master Gardeners Kay and Les Knight Carla and Brian Olson Piedmont Natural Gas Publix Super Market Charities ScanSource Charitable Foundation

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, Afternoon Explorations, Starry Nights and select special events
- •Discounted admission to Planetarium Laser Shows
- •Summer Camp, discounts and access to 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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