

# **Roper Mountain**





Priority registration deadline for on-site learning labs is September 9, 2022



A 402 Roper Mountain Road Greenville, SC 29615

P 864.355.8900 F 864.355.8948

RoperMountain.org









P 864.355.8900 F 864.355.8948

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. New science standards will be explored for most grades and opportunities for inquiry abound. 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 though "Live From Roper" virtual lessons, our Virtual On Demand, 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.

### **Michael Weeks**

Director













## **Inside This Guide**

1st Grade	Page 3
2nd Grade	Page 7
3rd Grade	Page 9
4th Grade	Page 11
5th Grade	Page 13

## Middle School Assemblies and Learning Labs for:

6th Grade	Page 18
Live from Roper	Page 21
Virtual On Demand	Page 22
Science on Wheels	Page 23
Public Events	Page 24
Science PLUS	Page 26
Planning Your Visit	Page 27
Fee Information	Page 28
Community Partners	Page 29

RMSC Map .....Page 30

# 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 or 864.355.8925 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 September
   9, 2022. We will accept registrations after priority deadline expires, however they will be scheduled last.
- 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 abuckmaster@greenville.k12.sc.us for elementary and liphilli@greenville.k12.sc.us for middle school.
- Registration forms may be mailed to: Roper Mountain Science Center Education Office
   402 Roper Mountain Road, Greenville, SC 29615
- Requests received after September 9, 2022 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 28).
- Lunches are now available for purchase during your visit. Our new on-site GCS FANS (Food and Nutrition Services) café provides school meals for students and adults. There is no longer the need to bring bag lunches or use an outside food vendor. Teachers and chaperones may also purchase full meals, cash required.

Click here for the menu and pricing.

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 5th) or list 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 or 864.355.8925.
- 4th and 6th grade classes may request a second visit to Roper Mountain. All other grades may schedule one on-site visit per year, but are encouraged to schedule as many "Live from Roper" virtual lessons as they would like.







P 864.355.8900 F 864.355.8948

## RoperMountain.org



# **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 touch on multiple first grade science standards. Be dazzled by our sound and light demonstrations! Get ready to learn about unusual animals and marvel at their special characteristics that help them survive!

Science Standards: 1-PS4-1, 1-PS4-2, 1-PS4-3, 1-PS4-4, 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? We need your help to solve a real world chicken story down on our Farm. Students will learn about chicken behaviors and observe if chicks are like their parents as we visit our big barn. 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 or not.

Science Standards: 1-LS1-2, 1-LS3-1 Social Studies: 1.G3, 1.E.2

Math Standards: 1.ATO.1

### OR

## **Animal and Plant Powers**

Environmental Science Building — 60 Minutes



Using live animals and our interactive exhibits, students will learn how animals use their bodies and powers to help them survive, grow, and meet their needs. Students will also explore our transpiration tree exhibit and our pollinator garden to discover different plant parts that help them survive and grow. Science Standards: 1-LS1-1







P 864.355.8900 F 864.355.8948

RoperMountain.org



# **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 fun-filled 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

Continued on next page.







P 864.355.8900 F 864.355.8948

## RoperMountain.org



# 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, 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:

## **Growing Garden**

Living History Farm — 25 Minutes

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 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.







P 864.355.8900 F 864.355.8948

## RoperMountain.org



# **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, 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.

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

## 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 aquariums 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 explore island life and what structures animals and plants must have in order to survive there.







P 864.355.8900 F 864.355.8948

RoperMountain.org



# **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 dedicated to the protection of the environment, namely the protection of the seas and oceans. Two friends, Barney and Beenie, take care of the cleanliness of their ocean lagoon. Many adventures await them, one of which is the rescue of a small turtle stuck in a plastic net. And at night, friends learn the constellations. Science Standards: 2-LS2-1

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)

AND

**Our Home: Then & Now** 

**Our Farm: Then & Now** 

Continued on next page.







P 864.355.8900 F 864.355.8948

## RoperMountain.org



# **SECOND GRADE**

Continued from previous page.

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

## **Option A** - Environmental Science Building



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 the rainforest and other habitats)

### Surviving In the Wild

From the mountains to the sea, students will explore different habitats within SC in our Ecology Lab and discover how plants and animals survive in these 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 working in our heritage garden; visit our blacksmith shop and 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







P 864.355.8900 F 864.355.8948

RoperMountain.org



# **THIRD GRADE**

## **Natural Science Discovery Day**

You will receive four 40-minute learning labs in the following "Discover" group. 9:30am - 1:15pm.

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, 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

### **Life Cycles**





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 more!

Science Standards 3-LS1-1







P 864.355.8900 F 864.355.8948

RoperMountain.org



# **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 animals that are adapted to slither, hop or crawl in a rainforest habitat. The lesson will include a tour of our rainforest greenhouse, and the exploration of needs and characteristics of organisms who call the rainforest their home.

Science Standard: 3-LS4-3

## **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-LS4-2, 3-LS4-3







P 864.355.8900 F 864.355.8948

RoperMountain.org



# **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 and Astronomy Experience Power of Light

Symmes Hall of Science — 55 Minutes

Come see if you have what it takes to save the day! Working in collaborative teams, students will use special equipment to take advantage of the properties and behaviors of light to help the superhero Rohawk escape! Will you be able to use interactions of light with materials to save Rohawk? 2014 Science Standards: 4.P.4A.1, 4.P4A.4, 4.P4A.5, 4.S1A.2

## **Weather Together**

Symmes Hall of Science — 55 Minutes



Wind, storms, and tornadoes! Oh my! Through hands-on activities students will explore weather safety and relationships within weather systems that lead to storms. Be wowed by tornado and lightning demonstrations and learn how to stay safe by putting the factors of weather together.

2014 Science Standards: 4.E.2B.2, 4.S1A.2

## **Exploring Sound**

Symmes Hall of Science — 55 Minutes

Help solve the mystery on the Mars rover! Using special software and technology, students will detect the pitch and volume of a dangerous vibration. Students will work in teams using their problem solving skills to engineer and test a solution to stop the vibration!

2014 Science Standards: 4.P.4B.2, 4.S.1A.3, 4.S.1.B.1

### **Solar Exploration**

Symmes Hall of Science — 55 Minutes

Students will become solar adventurers as they take an in-depth look at earth's seasons and how the sun's light intensity changes throughout the year. They will also explore moon phases and discover how the sun affects which moon phase is seen here on Earth.

2014 Science Standards: 4.E.3B.1, 4.E.3B.4

Continued on next page.







P 864.355.8900 F 864.355.8948

RoperMountain.org



# **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 Amphibians and Insects - Characteristics and Growth

Harrison Hall of Natural Science — 55 Minutes

Poison glands, slimy skin, and armored bodies are just a few of the superherolike adaptations students will explore in this lesson while getting up close to animals like beetles, moths, and salamanders.

2014 Science Standards: 4.L.5A.3, 4.L.5B.3

### **Our Water Story**

### Environmental Science and Sustainability Building — 55 Minutes

You never knew how exciting the water cycle could be until you've experienced it here at Roper Mountain. Students will explore all the parts of this process through engaging and exciting hands-on activities that include snow storms, cloud chambers and instant snow towers.

2014 Science Standard: 4.E.2A

Sponsored by:





### **Exhibit Exploration**

### Environmental Science and Sustainability Building — 55 Minutes

Utilizing our immersive Water Story exhibit, students will take off on a scavenger hunt and get the opportunity to fully explore and learn about how the water cycle affects the Upstate. Students will also have the opportunity to view up close some of the awesome animals that live in our area and depend upon clean water.

2014 Science Standards: 4.E.2, 4.L.5

### **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







P 864.355.8900 F 864.355.8948

RoperMountain.org



# FIFTH GRADE

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 Layered Earth program to illustrate specific 5th grade Earth's Systems science concepts including the interactions of the geosphere, biosphere, hydrosphere, and atmosphere. Science Standards: 5-ESS2-1

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.







P 864.355.8900 F 864.355.8948

RoperMountain.org



# 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

#### **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**



Environmental Science and Sustainability Building — 55 Minutes

Using interactive Enviroscape models, students will discover how human impacts such as lawn fertilizer, litter, and even your own dogs waste can affect our land and water. With our augmented reality sandboxes, students will also shape and create landforms that impact our environment. Students will walk away as Conservation Cadets with solutions to help protect our Earth! Science Standards: 5-ESS2-1, 5-ESS3-1

#### **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

Sponsored by:











P 864.355.8900 F 864.355.8948

RoperMountain.org



# 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.

## **Deep Sea**

### 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-ESS2.1

## 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, 5-ESS2-1

### **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







P 864.355.8900 F 864.355.8948



# 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 explore the powerful relationships between water, energy, and Earth that lead to the 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 on the different regions of Earth.

2014 Science Standards: 6.E.2A.1, 6.E.2A.3, 6.E.2B.2, 6.E.2B.3

Sponsored by: **FLUOR** 

## **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.

2014 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. The very popular review is set to "rap." You may find yourself humming it on the way back to school!

2014 Science Standards: 6.E.2A.3

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







P 864.355.8900 F 864.355.8948

RoperMountain.org



## 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 Energy Lab Experience**

## STEM Lab — The Power to Survive

Only Available September - January

Symmes Hall of Science — Three 55-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.P.3A.4, 6.S.1A.2, 6.S.1A.4, 6.S.1A.6

## OR

# **6th Grade Organisms and Earth Systems Lab Experience**

### **Bioblitz (Biodiversity Inventory)**

Only Available January - May

Environmental Science and Sustainability Building Three 55-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. Students will 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

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







P 864.355.8900 F 864.355.8948



# 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



## Fire and Ice — 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-PS1-2, 7-PS1-5, 7-PS1-6

## **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-LS2-1, 7-LS2-2, 7-LS2-3

## 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-LS2-1, 7-LS2-2, 7-LS2-3

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







P 864.355.8900 F 864.355.8948

RoperMountain.org



## 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 to the Rescue**



Only Available September - January

Symmes Hall of Science — Three 55-minute learning labs

In this three-part STEM lab rotation students apply science and engineering skills to help solve problems that have arisen on a research submarine deep in the arctic waters. Students investigate the law of conservation of mass to produce life-saving oxygen from water, test and determine which chemical reactions took place during an unknown leak, and generate and utilize synthetic and natural products to solve an intriguing problem on the sub. Science Standards: 7-PS1-2, 7-PS1-3, 7-PS1-5

## OR

## 7th Grade Ecosystem Lab Experience:

## **Ecology Survival Challenge**

Only Available February - May 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).







P 864.355.8900 F 864.355.8948



# 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

New

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**

### **Earth's Place in the Universe**

Hooper Planetarium and Giant Dome Theater — 60 Minutes

Earth, moon, sun and stars ... we'll 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? Exactly how big is the sun? What galaxies are closest to our own? We'll explore the answers to these questions and more in a unique setting that will engage your senses; under 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







P 864.355.8900 F 864.355.8948

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 - Landscape Shapes

2nd Quarter - Materials from the Land

3rd Quarter - How Landscapes Change

4th Quarter - Biodiversity in Habitats

## **3rd Grade**

1st Quarter - Playground Forces

2nd Quarter - Life Cycles for Survival

3rd Quarter - Surviving in Changing Environments

4th Quarter - Weather Impacts

## 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

## 5th Grade

1st Quarter - What is Matter Made of?

2nd Quarter - From Matter to Organisms

3rd Quarter - Interacting Earth Systems

4th Quarter - Patterns in the Night Sky

**CLICK HERE TO REGISTER** 

# Virtual On Demand

CLICK HERE FOR DETAILS AND TO REGISTER



A 402 Roper Mountain Road Greenville, SC 29615

P 864.355.8900 F 864.355.8948

RoperMountain.org



# **VIRTUAL ON DEMAND**

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. Each program is unique, engaging, and based on South Carolina and National standards.

Free for Greenville County Schools. Visit https://www.ropermountain.org/educators.asp?titleid=vft 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 On Demand offerings.







CLICK HERE FOR DETAILS AND TO REGISTER



A 402 Roper Mountain Road Greenville, SC 29615

P 864.355.8900 F 864.355.8948

RoperMountain.org



# 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 K-8. 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.

















# Roper Mountain

A 402 Roper Mountain Road Greenville, SC 29615

P 864.355.8900 F 864.355.8948



# PUBLIC EVENTS & PROGRAMS



# Open every Friday Night from January through November

### **Planetarium Shows**

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 3-12

\$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 13 - May 12

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

\*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.
- Explore Harrison Hall of Science on select First Fridays as well as take part in special themed programming offered once each month that includes activities in both Harrison Hall and the Living History Farm.

## Afternoon Explorations Admission

Cash • Check • Credit Cards

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

FREE RMSC Members









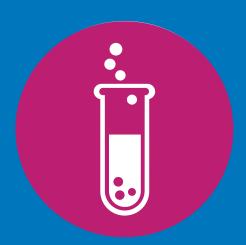
A 402 Roper Mountain Road Greenville, SC 29615

P 864.355.8900 F 864.355.8948



# SUMMER ADVENTURE

Summer Adventure is returning in 2023! 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



A 402 Roper Mountain Road Greenville, SC 29615

P 864.355.8900 F 864.355.8948



## 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

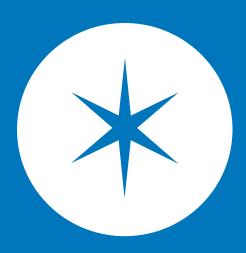
## Summer

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.







P 864.355.8900 F 864.355.8948



## **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 or 864.355.8925 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.

### **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.

#### Arriva

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 for purchase during your visit. Our new on-site GCS FANS (Food and Nutrition Services) café provides school meals for students and adults. There is no longer the need to bring bag lunches or use an outside food vendor. Teachers and chaperones may also purchase full meals, cash required.

Click here for the menu and pricing.

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

### **Cancellation**

If you must cancel a learning lab or visit, please contact the education office IMMEDIATELY at 864.355-8967. or 864.355.8925 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:

- 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.







P 864.355.8900 F 864.355.8948



## **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 Public Schools — FREE**

Public, Private, and Home School Associations One or more Learning Labs — Free

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

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

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

Two or more 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 CANNOT accept credit card payments over the telephone.

## **Contact Information**

Education Office 864.355.8967 or 864.355.8925 **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+**

**BMW Manufacturing Bosch Community Fund** Community Foundation of Greenville Daniel-Mickel Foundation Dodge Industrial **Duke Energy Foundation** Fluor Golf For Greenville Greater Greenville Sanitation Commission Greenville County Litter Prevention Greenville Water The Late Ernest and Betty Lathem Lockheed Martin MetroConnects Michelin Charity Golf Tournament Piedmont Arthritis Clinic, PA ReWa

South Carolina Farm Bureau

### **EXPLORER - \$15,000**

Fluor Foundation General Electric South Carolina Charities W.K. Dickson

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

Debbie Bell
Tom and Linda Hamilton
The Darrell Harrison Family
Ron and Tommie Reece
Brad Wyche and Diane Smock

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 early notification, 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!



A 402 Roper Mountain Road Greenville, SC 29615

P 864.355.8900 F 864.355.8948





# **Roper Mountain**



## RoperMountain.org



## 2022-2023 Scheduling Request Form

#### Mail form to:

Roper Mountain Science Center Education Office 402 Roper Mountain Road, Greenville, SC 29615

Please list the instructional level of students and any special requirements.

#### Or email form to:

Elementary abuckmaster@greenville.k12.sc.us Middle liphilli@greenville.k12.sc.us

#### **Questions?**

Please list the instructional level of students and any special requirements.

Elementary 864.355.8967 Middle 864.355.8925

402 Roper Mountain Road, Greenville, SC 29615		
	adline September 9, 2022 s after original priority deadline expiration.	
School: Dis	ol: District: If not Greenville County Public School	
${\bf Mailing/Billing\ Address:\ Required\ if\ not\ Greenville\ County\ Public\ School}$		
City:	State: Zip:	
Phone:	_ Fax:	
	Do not rank months you are not willing to attend	
Sept Oct Nov Dec	Jan.	
Teacher One	Teacher Two (sharing bus)	
Name:	Name:	
Grade: # Students: Check here for no picnic	Grade: # Students: Check here for no picni	
First Grade  Year-Round  Year-Round Adventure  May Only (please rank)  Light & Sound or Down on the Farm or  Natural Science	First Grade Year-Round  Year-Round Adventure  May Only (please rank)  Light & Sound OR Down on the Farm OR  Natural Science	
Second Grade (please rank)  Option A or Option B or Option C	Second Grade (please rank)  Option A or Option B or Option C	
Third Grade (please rank)  ☐ Natural Science Discovery or ☐ Farm and Science Discovery	Third Grade (please rank)  Natural Science Discovery or Farm and Science Discover	
Fourth Grade (please rank)  Life Science & History or Physical Science & Astronomy	Fourth Grade (please rank)  Life Science & History or Physical Science & Astronomy	
Fifth Grade (please rank)  Matter or Earth & Ecosystem or "Sea" It In a Day	Fifth Grade (please rank)  Matter or Earth & Ecosystem or "Sea" It In a Day	
Sixth - Eighth (please rank) List learning labs in YOUR grade level (Grades 6 — 8) you would like to attend in order of preference with 1 being your first choice.  1	Sixth - Eighth (please rank) List learning labs in YOUR grade level (Grades 6 — 8) you would like to attend in order of preference with 1 being your first choice.  1	
2	2	
3	3	
Special education teachers:	Special education teachers:	