



Hands-on, minds-on

# Field Trips at ScienceSouth

Join the ScienceSouth staff for your very own hands-on, minds-on ScienceSouth experience. Enjoy a standard-based activity that your students are sure to remember at the ScienceSouth Pavilion at Freedom Florence. ScienceSouth is available for field trips for grades K-12 as early as 9:00 am on Monday through Friday. Take a look at what we offer and we hope to see you soon!

K-  
3<sup>rd</sup>

There is a 30 student capacity for all K-12 workshops.

## Animal Adventures

45 minutes

Standards: K-2.1, K-2.3, K-2.4, 1-1.1, 2-1.3, 2-2.1, 2-2.2, 2-2.3, 2-2.4, 3-1.6, 3-2.1, 3-2.2, 3-2.4

*Students will explore characteristics of different animals; from where they live, to what they eat, and how they eat it. They will learn about how certain adaptations help some animals survive in the wild. There will also be hands-on animal fun with ScienceSouth's very own animal friends.*

## Glowing Science

45 minutes

*Students will learn about light, electricity, and luminescence inside our portable dark room. They will watch gases glow, light a bulb with their hands, and see their friend's teeth "twinkle."*

## Forces of Attraction

45 minutes

Standards: 2-5.1, 2-5.2, 2-5.4

*Students will explore characteristics of magnetism and their link to electricity using discovery boxes with hands-on tools. Working in pairs, students will use magnets to levitate, separate, and detect other metals.*

**K-  
3<sup>rd</sup>**

### **Soil Sleuths**

**45 minutes**

**Standards: K-1.1, K-1.3, K-2.1, K-2.2, K-5.1, K-5.2, 1-1.1, 1-1.2, 1-1.3, 1-1.4, 1-4.1, 1-4.2, 1-4.3, 2-1.2, 2-1.3, 2-2.1, 2-2.2, 3-1.1, 3-1.2, 3-1.3, 3-1.4, 3-1.5, 3-1.6, 3-1.7, 3-1.8, 3-3.1**

**Students will get a "feel" for soil as they explore its properties. Using soil samples from around their school they will determine its color, texture, size, and shape. Students will observe and predict the type of vegetation (as well as animals and microorganisms) that the soil supports.**

### **StarLab Planetarium**

**45 minutes**

**Standards: K-1.1, K-1.3, K-1.4, K-1.5, K-4.2, K-4.2, 1-1.1, 1-1.2, 1-1.3, 1-1.4, 1-3.1, 1-3.2, 1-3.3, 1-3.4, 2-1.1, 2-1.2, 2-1.3, 3-1.1, 3-1.2, 3-1.3, 3-1.4, 3-1.5, 3-1.6, 3-1.7, 3-1.8**

**Join ScienceSouth for a tour of the night sky inside the StarLab dome. Student astronomers will view the solar system, stars, and constellations. Following the universe tour, students will construct their own star finder.**

**4<sup>th</sup>  
8<sup>th</sup>**

### **Alternative Energy Cars**

**60 minutes**

**Build a model emission-free vehicle! Students will experiment with alternative energy sources and learn how they might be used around the world to power the future.**

### **Circulatory System 101**

**60 minutes**

**Standards: 7-3.2, 7-3.3, 7-3.4**

**Take a trip through the body's transport system! Students will learn the organs that comprise the circulatory system and how it cooperates with other organ systems. They will explore the parts and function of the heart and learn about cardiovascular diseases. Students will also view actual blood cells under a microscope and learn how to take blood pressure.**

### **Crystal Chemistry**

**60 minutes**

**Standards: 7-5.1, 7-5.2, 7-5.3, 7-5.7, 7-5.8, 7-5.9, 7-5.10**

**Learn about the science of crystals; what they are, how they form and why they are different shapes. Make a mini heating pad and your own crystal "ice" sculpture.**

### **Design & Build a Turbine**

**60 minutes**

**Students will explore wind and water as alternative energy sources as they design and build turbines to power electrical generators. They will also learn the benefits and challenges of greener energy.**

### **DNA Extraction**

**60 minutes**

**Standards: 4-1.2, 4-1.7, 4-2.1, 4-2.3, 4-2.4, 5-1.4, 4-1.8, 5-2.1, 5-4.2, 5-4.3, 6-1.1, 6-1.5, 6-2.1, 6-2.3, 7-1.1, 7-1.7, 7-2.1, 7-2.2, 7-2.7**

**Using real lab tools, students will extract DNA from fruits and vegetables. They will discover and investigate the properties of the molecular structure of DNA.**



## Exploration and Experimentation: Inquiry Science

60 minutes

Standards: 4-1.1, 4-1.3, 4-1.5, 4-1.6, 5-1.1, 5-1.2, 5-1.3, 5-1.5, 5-1.6, 6-1.2, 7-1.2, 7-1.3, 7-1.5, 8-1.1, 8-1.2, 8-1.3, 8-1.4, 8-1.5, 8-1.6

How do you choose and carry out a good science experiment or project?

Once completed, what is the most effective/impressive way in which to present the results? ScienceSouth can answer these questions as we lead students through activities that demonstrate how to conduct a successful science experiment or project. This workshop is especially useful to students designing science fair projects.

## Micro-Aquaria: Life in a Drop of Water

60 minutes

Standards: 4-2.5, 4-2.6, 5-2.1, 5-2.2, 5-2.4, 5-2.5, 7-2.1, 7-2.2, 7-2.3, 7-2.4, 7-2.5, 7-2.6, 7-3.1, 7-3.2, 7-3.3, 7-4.1, 7-4.2, 7-4.3, 7-4.4, 7-4.5, 7-4.6, 8-2.1, 8-2.2, 8-2.3

Students will delve into the world of microorganisms. Students will use microscopes to discover the differences between plant and animal cells. After making wet slides, students will examine and identify various prokaryotic cells and eukaryotic cells, and explore various types of microbial life forms in water, including protozoa and arthropods.

## Outrageous Optics

60 minutes

Standards: 4-5.1, 4-5.2, 4-5.3, 4-5.4, 4-5.11, 6-5.2

Explore some of the basic properties of light in our outrageous optics workshop. Students will see a rainbow appear in their classroom, use lasers to explore reflection and refraction, and make their best attempt at our mirror challenge.

## Sandlapper Sleuths

60 minutes

Standards: 5-3.1, 5-3.4, 5-3.5, 7-1.1

Students will investigate sand and its unique characteristics. Using microscopes and micrometers, they will observe, compare and contrast sand from different locations. They will learn about the processes that form sand and its landforms, dunes, beaches and sandbars.



## So WATT?

60 minutes

Standards: 4-5.5, 4-5.6, 4-5.7, 4-5.8, 6-5.1, 6-5.2, 6-5.3, 6-5.4

Illuminate the science of electricity! Students will investigate energy transformations, experiment with circuitry, and discover the functions of different electrical components by making their own working circuits.

## StarLab Planetarium

60 minutes

Standards: 4-1.1, 4-1.2, 4-1.3, 4-1.4, 4-1.5, 4-3.1, 4-3.2, 4-3.3, 4-3.4, 4-3.5, 4-3.6, 4-3.7, 4-3.8, 5-1.1, 5-1.3, 5-1.4, 5-1.5, 5-1.6, 6-1.1, 6-1.4, 7-1.1, 7-1.2, 7-1.4, 7-1.6, 8-1.4, 8-1.6, 8-1.7, 8-4.1, 8-4.3, 8-4.4, 8-4.4, 8-4.5, 8-4.8, 8-4.9, 8-4.10

Join ScienceSouth for a tour of the night sky inside the StarLab dome. Student astronomers will view the solar system, stars, and constellations. Following the universe tour, students will construct their own star finder.

4<sup>th</sup>  
-  
8<sup>th</sup>

### What's in Your Watershed?

60 minutes

Standards: 5-3.6, 5-4.1, 5-4.2, 5-4.3, 5-4.4, 5-4.8, 6-4.1, 6-5.3, 7-4.3, 7-4.4, 7-4.5, 7-4.6, 7-5.2, 8-2.7

What is pollution and how does it affect our watersheds? Students will test a polluted "pond" sample for pH, temperature, and conductivity. Using the processes of filtration, sifting, magnetic attraction and flotation, they will separate the sludge to discover how and why pollution occurs.

9<sup>th</sup>  
-  
12

### Build a Solar Cell (Grades 9-12)

60 minutes

Standards: PS-6.1, PS-6.2, PS-6.6, PS-6-8, PS-6.9, B-3.1, B-6.6, PS-4.10

Students will build a berry-powered solar cell and explore how to produce electricity from light. Students will also be able to measure the current and voltage of their solar cell.

### Electrophoresis Workshop (Grades 9-12)

120 minutes

Standards: B-1.1, B-1.2, B-1.3, B-1.4, B-1.5, B-1.6, B-1.7, B-1.8, B-1.9, B-4.1, B-4.2, B-4.3, B-4.7

High school students become scientists as they experiment with the electrophoresis process. This lab investigation will provide experience in material preparation, sample testing, and identification.

### Genes in a Bottle

60 minutes

Standards: 7-2.4, 7-2.5, B-4.1, B-4.2, B-4.3, B-4.6, B-4.7

Introductory genetics is explored with this educational and fun DNA extraction procedure! The concept of DNA becomes tangible to students as they extract their own genes from cheek cells, using proper lab procedures just as real world scientists do everyday. Once they precipitate their DNA, they preserve it in a take-away bottle of their very own.

### Marvels of Mitosis

60 minutes

Standards: 7-1.1, 7-2.4, 7-2.5, B-2.1, B-2.6, B-4.2, B-4.3, B-4.5

In this fun and engaging life science workshop, students will review and explore the process of cell division. Using manipulative tools, they will work through the four stages of mitosis. Students will use microscopes to view the life cycle of the cell in onion root tips. This standards-based, hands-on experience will reinforce the concept of mitosis.

### Organic Synthesis (Grades 9-12)

60 minutes

Standards: HS PS-2.2, PS-2.2, PS-2.33, PS-2.4, PS-3.1, PS-3.2, PS-3.3, PS-3.5, PS-3.6, PS-3.7, PS-4.1, PS-4.2, PS-4.3, PS-4.4, PS-4.5, PS-4.6, PS-4.7, PS-4.8, PS-4.9, PS-4.10, PS-4.11

Investigate chemical bonding using models and other scientific tools! Students will run an organic synthesis reaction and explore atomic valence, molar concepts, balancing chemical reaction equations and chemical reactivity.



7<sup>th</sup>  
-  
12

### StarLab Planetarium

45 minutes

Standards: ES-2.1, ES-2.2, ES-2.2, ES-2.3, ES-3.4, ES-2.4, ES-2.5, ES-2.5, ES-2.6, ES-2.7, ES-2.8, ES-2.9

Join ScienceSouth for a tour of the night sky inside the StarLab dome. Student astronomers will view the solar system, stars, and constellations. Following the universe tour, students will construct their own star finder.

## LIVE Science Shows

### FIRE and ICE

45 minutes

Fire is the most important force in human history! You'll experience the science of fire by exploring the fire triangle, watching ice cubes "burn," dust "explode," and a "rainbow" of fire. Our new fire science show is sure to WOW!

### Infinity and Beyond Space Show

45 minutes

Standards: K-2.1, 1-3.2, 1-3.3, 1-3.4, 1-5.2, 1-5.4, 2-3.1, 2-4.3, 3-4.4, 4-3.2, 4-3.3, 4-3.6, 5-5.1, 5-5.6, 6-4.1, 6-4.4, 6-4.7, 8-4.1, 8-4.2, 8-4.3, 8-4.4, 8-4.6, 8-4.7, 8-4.8, 8-4.10

Come and join us as we explore space. What is the temperature of the moon? What exactly is the vacuum of space? What keeps our feet on the ground and the planets in motion? Find out all of this and more as we travel to infinity and beyond.

### Scales and Tails

45 minutes

Standards: K-2.1, K-2.2, K-2.5, 2-2.1, 2-2.2, 2-2.5, 3-2.2, 3-2.4, 3-2.5, 4-2.1, 4-2.3, 4-2.4, 6-3.1, 6-3.2, 6-3.3, 6-3.4

Get up close and personal with our live animals! Discover their unique habitats and how they fit into the food chain. You'll compare cold blooded and warm-blooded creatures, vertebrates and invertebrates, and reptiles and amphibians.

### Sports Science Show

45 minutes

Standards: K-3.1, K-3.2, K-5.1, K-5.2, 1-5.1, 1-5.2, 1-5.3, 1-5.4, 3-5.1, 3-5.2, 3-5.3, 3-5.4, 3-5.5, 5-5.1, 5-5.2, 5-5.3, 5-5.4, 5-5.6, 6-5.2, 6-5.6, 6-5.7, 6-5.8, 8-5.3, 8-5.4, 8-5.5, 8-5.6

Calling all sports fans! Ever wonder how a curve ball curves? What makes a basketball bounce? What is the sweet spot on a baseball bat and why is it so important? Learn all this and more as we explore the physics behind sports.

### Weather Show

45 minutes

Standards: K-4.1, K-4.2, 2-3.1, 2-3.2, 2-3.3, 2-4.1, 2-4.2, 2-4.3, 3-4.2, 3-4.3, 4-4.1, 4-4.3, 4-4.4, 6-4.1, 6-4.2, 6-4.4, 6-4.5, 6-4.8

Come experience the wild world of weather! Learn the basics of weather and explore temperature, pressure, and volume. Get the scoop on wind and weather fronts too!