



FIELD TRIP

GUIDE 2022-2023



Touring Exhibitions	2
Exhibitions	4
The Dome	6
Demonstrations	8
Engineering Challenge Labs	9
Workshops	10
Science on a Sphere®	11
Carpenter Science Theater	12
Teacher Workshops	13
Make the Most of Your Visit	14
Digital Demos	16

Teacher Open Houses!

Mark your calendars! On **September 24, 2022**, and **January 21, 2023**, we will host Teacher Open Houses at the Science Museum that will give you a chance to talk with our educators about field trips and bring some friends or family for free! Visit smv.org for details and registration information.

Sponsored by:



VIRGINIA LOTTERY



Homeschool Groups!

Visit smv.org/homeschoolgroups to learn about how to book a group visit.



Field Trips at the Science Museum of Virginia

A lot has changed over the last few years. But the awesomeness of field trips remains the same!

Field trips give teachers the chance to expand upon classroom lessons and students the chance to experience—first hand—how STEM applies to nearly everything around them. Plus field trips give everyone a change of scenery for a day!

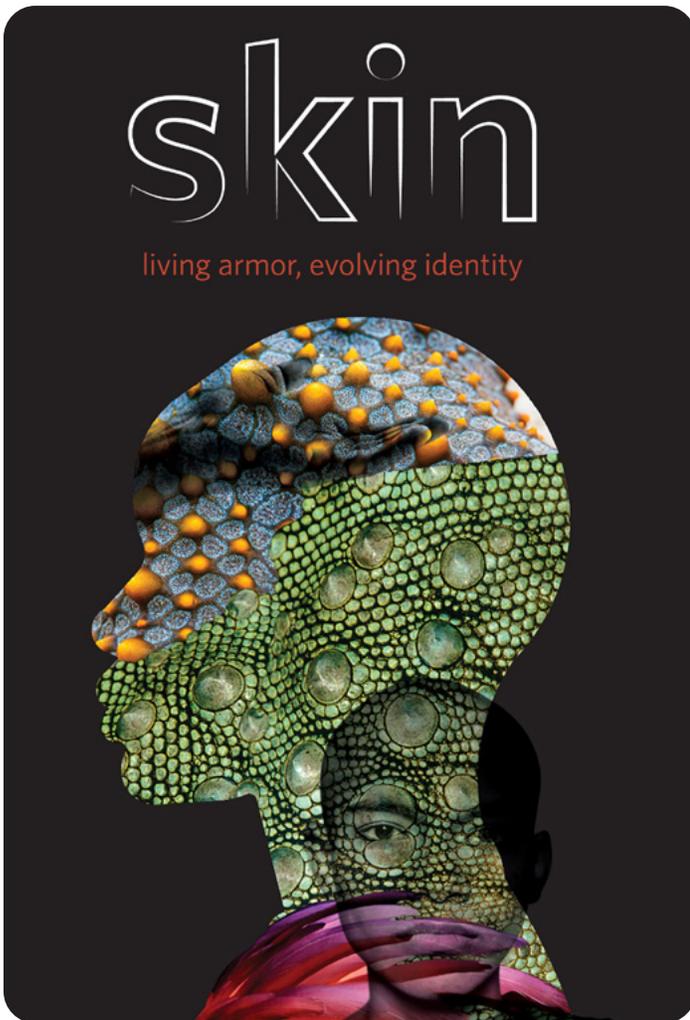
Whether you're coming to explore our exhibits, plan to see an astronomy show or giant screen film in The Dome, or want to add a workshop or lab to let your students get really hands-on, we're ready and waiting!

This guide will show you just about everything you can do on a field trip to the Science Museum. We've also included our Digital Demo offerings just in case your class needs to stay put for now.

Once you're ready to book, give us a shout or head to smv.org/groups to fill out our online reservation request form and we'll make it happen.



Touring Exhibitions



Open through January 15, 2023
Included with admission

Skin has a number of impressive features: it's shape shifting, color changing and highly adaptive. But it's also thought provoking, interaction changing and extremely personal. In this interactive exhibition, guests will explore the physical and philosophical properties of skin. What can skin teach us about evolution, adaptation, innovation, regeneration and protection? From armored scales, aerodynamic feathers and insulating fur to the role pigment color plays in racism, prejudice and discrimination, guests will figuratively and literally feel the complex, multi-layered impacts of skin as viewed through the lens of science.

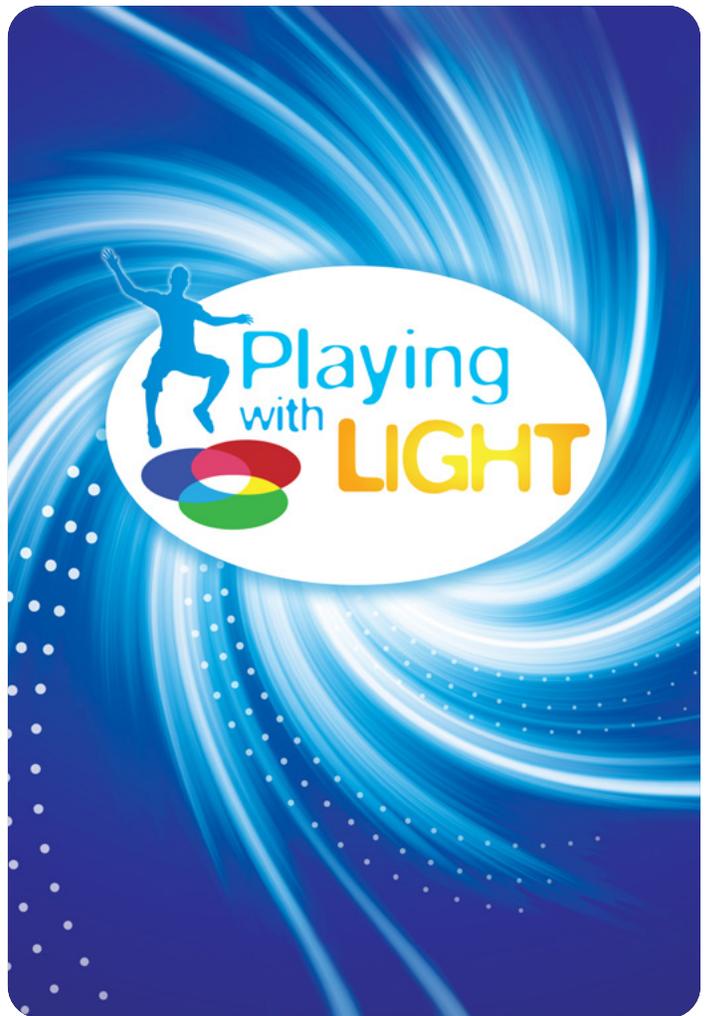


SPONSORED LOCALLY BY:



Patient First

Created by the California Academy of Sciences and modified for travel and distributed by the Science Museum of Minnesota.



February 11–August 20, 2023
Included with admission

Using basic physics principles, innovative interactive experiences and a sense of fun, *Playing with Light* offers the opportunity to explore our world and how it is illuminated through 22 exhibits with a multitude of outcomes. Full-body interactive exhibits will encourage guests to engage in an array of exciting and amazing light, laser and lens-based experiences, including freezing their shadows, mixing colored lights, discovering how to shake their own hand and making a laser beam bounce down a stream of water. Guests will leave with a deeper appreciation of how light plays a vital role in our daily lives and how science helps us to describe and explain the behavior of light.



Playing With Light was developed by Scitech in Perth, Australia and produced by Imagine Exhibitions.



May 27–September 4, 2023
Extra ticket required.

Using hands-on and large-scale interactive exhibits and multimedia components, *Space: An Out-of-Gravity Experience* gives guests a glimpse at the extraordinary conditions of human space travel. Witness the innovation that makes life possible in the unforgiving vacuum of space and experience what it's like to be on board the International Space Station. *Space: An Out-of-Gravity Experience* will give guests a glimpse of the challenges and triumphs of space exploration. Discover what is possible and what awaits in orbit and beyond.

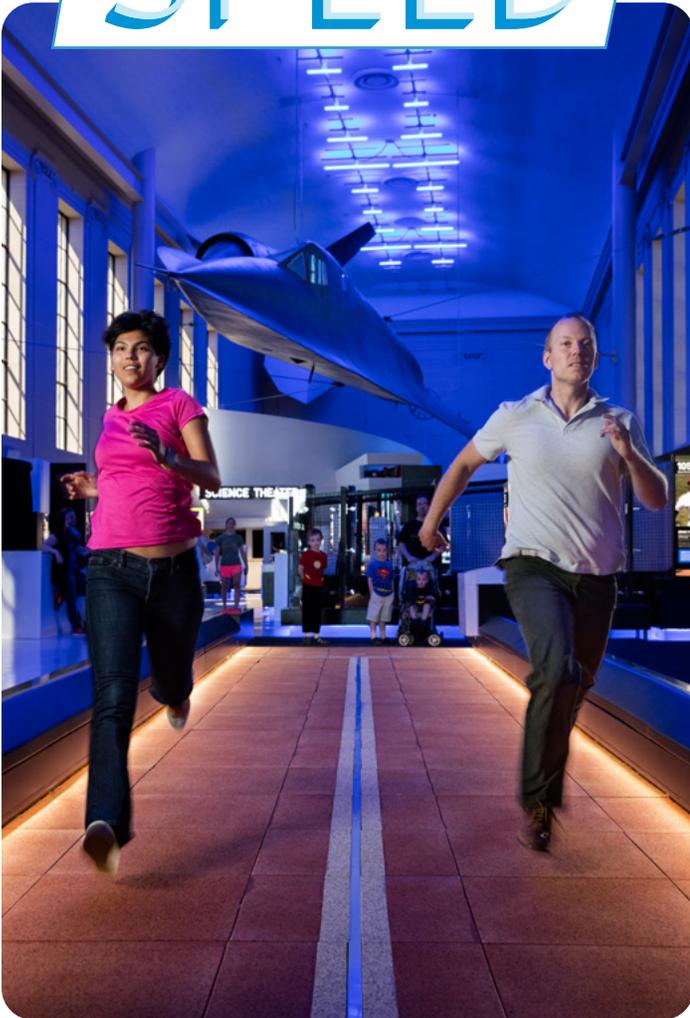
SPONSORED LOCALLY BY:



Designed and developed by the Science Museum of Minnesota in partnership with the International Space Station Office of NASA's Johnson Space Center, the California Science Center, and partner museums.

Exhibitions

SPEED



©SEAN DEWITT PHOTOGRAPHY

Featuring the SR-71 Blackbird supersonic jet, *Speed* unveils the mind-blowing intersection of motion and time across a world of science and technology. Experience the superfast and the incredibly slow as you race an Olympic athlete, feel hurricane force winds, challenge a quick-thinking robot and more.

BOOST!



This exhibition focuses on the science behind wellness, but it's so fun that students won't notice they're learning! Generate energy with your feet and hands, lift your peers with the power of leverage, compose music using animatronic instruments, or challenge peers to a dance off or a battle of memory games. *Boost* will really keep them on their toes.

Thank you to our *Boost Kitchen* sponsors:

Hamilton Beach



THE FORGE



The Science Museum's makerspace, *The Forge*, harnesses the power of the maker movement, celebrates innovation and encourages guests to roll up their sleeves to create. Part showroom and part workshop, *The Forge* both celebrates and demonstrates the process of design and fabrication. Classes are welcome to participate in Maker Challenges, which are simple, open exploration-style engineering activities offered most mornings from 10 a.m. – 12 p.m. No registration is required; space is available on a first-come, first-served basis. Visit smv.org for activities scheduled on the day of your visit.

Want your students to dive deeper into engineering skills? Sign your students up for one of our engineering challenges (see page 9).

Other Spaces to Explore



Art Lab

Get creative as you mix science and art in this hands-on lab. The Science Museum provides the materials and suggested activities and you provide the imagination! Activities may change by time of year or other available programming.



Community Science Hyperwall

The Community Science Hyperwall, funded through a Museums for America grant from the Institute of Museum and Library Services, leads guests through environmental, social and climate science stories from right here in Virginia.



Animal Lab

Have an up-close encounter with snakes, cockroaches, beetles and more! Find out what different animals need to survive in their environment and how they eat, sleep and live. Come on, who doesn't love animals?



Eco Lab

Eco Lab is big on all things ecology! See the world up close with our microscope. Check out a Winogradsky column and learn about all the species living in what is basically a bacterial terrarium or observe our honeybee hive. Can you spot the queen?

The Dome

Get engaged with space during an astronomy show or travel to some of the most elusive places on Earth with our giant screen films! Dome features are approximately 45 minutes long.

The Science Museum offers rotating features in a regular Dome schedule for guests. Groups can purchase tickets to scheduled shows. Groups of 35 or more can request a special Dome showing from anything in our public library during one of the regularly scheduled Dome showtimes if tickets have not already been sold. Groups of 75 or more can also book any Dome feature from our public library and can reserve a special time spot, subject to availability.



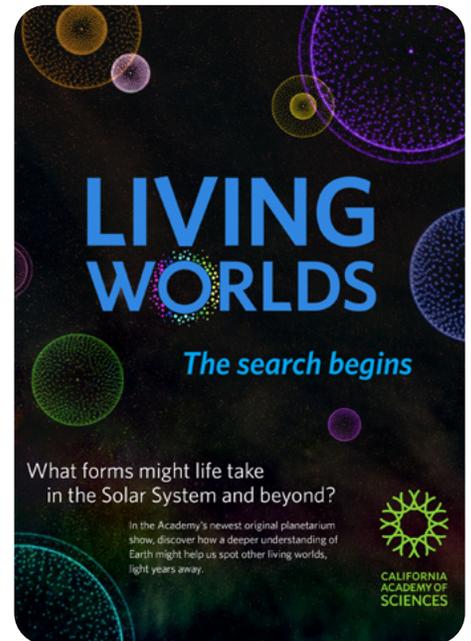
© VIRGINIA TOURISM CORPORATION



Step off the beaten path and connect to your inner trailblazer in this cross-country journey to some of the most beautiful but little-known landscapes of North America. *Into America's Wild* is a non-stop ride via kayak, train, bike, hot air balloon and more that explores the transformational allure of wild places and the human connection we all share with the natural world.



Deep in the Pacific Coast of British Columbia, Canada, a rare creature roams its forests and mountains. The Kermode bear, also known as the spirit bear, is one of the rarest bears on Earth! Go on a journey through an incredibly diverse ecosystem to get an up-close and personal look at grizzlies, black bears, spirit bears and the inhabitants that call this remote location home.



Whether earthly or alien, all life leaves a trace. Go on a journey through space and time to discover how life makes Earth liveable, where it could be found elsewhere in the cosmos and what new technologies we might use to find it. Along the way, you'll learn how light and color can help us spot other living worlds even from vast distances.

The Dome Detail Offerings

Below is a sample of other features available in The Dome. Visit smv.org for a full list of offerings and trailers.

Astronomy Shows



Live Universe

Take off on a spectacular tour of space as you see a custom all-live astronomy show. Interested in learning about the latest space discoveries, planets, moons, asteroids or comets? Pick your cosmic destinations, and let our astronomer be your guide as you explore the stars like never before!



We Are Stars

Journey 13.8 billion years through time and space to discover our origins. Investigate our cosmic chemistry by following the formation of hydrogen atoms to the synthesis of carbon and beyond. See stars explode and planets form as you explore the secrets of the universe in this steampunk inspired adventure.



Birth of Planet Earth

How did we become a living planet, and what does history tell us about finding other life in the universe among a billion other Earth-size planets scientists believe exist today? Uncover the mix of activities that combined to make life possible.



Forward to the Moon

NASA's 21st century Artemis program, named after the Greek moon Goddess and twin of Apollo, is the next step in our mission to explore the universe and land the first woman and person of color on the surface of the Moon.

Giant Screen Films



Antarctica

With never-before-seen footage, *Antarctica* brings audiences to the farthest reaches of this wild and majestic continent. It is the coldest, driest and windiest place on Earth and yet weird and wonderful creatures thrive here in astounding abundance.



Dream Big

Celebrate engineering ingenuity and see innovation brought to life in the most unlikely places! From the world's tallest building to underwater robots, *Dream Big* reveals the hidden world behind ingenious inventions and iconic structures. Discover how today's engineers are shaping our tomorrow.



Oceans: Our Blue Planet

From coastal shallows to mysterious worlds, discover untold stories of the oceans' most astonishing creatures. Meet fascinating characters like the ingenious tusk fish that uses a tool to open its food or find a cunning octopus who shields herself in an armory of shells to hide from predators.



Volcanoes: The Fires of Creation

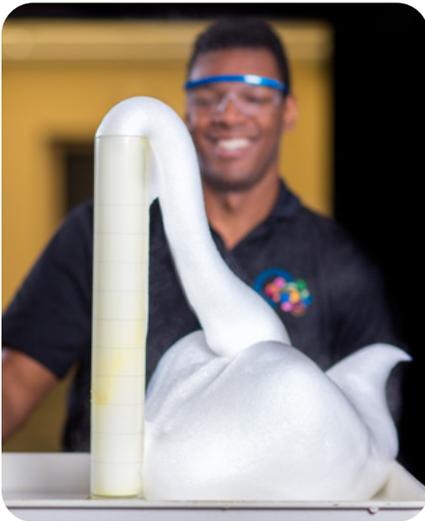
For billions of years, volcanoes have helped forge the world we know. With over 500 active volcanoes, the Earth is bursting at the seams with these forces of mass construction. Travel across the globe to learn the story of volcanoes, the story of the planet's creation.



Demonstrations

Demos are explorations where participants watch and engage with a Science Museum educator who demonstrates amazing scientific experiments to guests. Demos are approximately 30 minutes long and can accommodate up to 120 guests, depending on space availability.

Live Science Programs are available during weekday operating hours. Add a Live Science Program for \$4 per person. A minimum of 10 guests are required to reserve a Live Science Program.



©SEAN DEWITT PHOTOGRAPHY

Amazing Animals

Grades K–7

Have an up-close encounter with snakes, cockroaches and rats! Find out what different animals need to survive in their environment. And come on, who doesn't love animals?

SOL Standard:

K 6,7 **1** 5 **2** 4,5 **3** 4 **4** 2

LS 6, 7, 8, 11

Brain Dissection

Grades 5–12

Watch one of our educators dissect a sheep brain and learn about its different parts and functions. How does your brain work? We'll cover the brain and its role in the nervous system!

SOL Standard:

LS 2 **BIO** 3 **PH** 6

Cow Eye Dissection

Grades 5–12

You won't believe your eyes! Can cows see color? Do our eyes change over time? Watch an educator dissect a cow eye while explaining its different parts and functions. Learn about the eye-brain system by comparing human eyes and cow eyes.

SOL Standard:

LS 2 **BIO** 3 **PH** 6

Heart Dissection

Grades 5–12

How does your heart work? Watch an educator dissect a sheep heart while explaining its different parts and functions. You're going to love learning about the cardiovascular system.

SOL Standard:

LS 2 **BIO** 3

Radical Reactions

Grades 6–12

Discover chemistry at its coolest as we make fire and foam. Explore four types of chemical reactions to learn about acids and bases and exothermic and endothermic reactions.

SOL Standard:

6 5 **PS** 3 **CH** 5, 7

Scientific Method

Grades K–6

Put your observation and prediction skills to the test as we go step-by-step through an exciting science experiment. What can we learn and what could we do differently next time?

SOL Standard:

K 1 **1** 1 **2** 1 **3** 1 **4** 1 **5** 1 **6** 1

Simple Machines

Grades 3–5

Can you name the six types of simple machines? Learn how simple machines work and observe simple machines in action.

SOL Standard:

3 2 **5** 2 **PS** 1

Sound Science

Grades 5–8

Explore the science behind sound waves. We'll blow your mind—but not your eardrums—with the power of sound.

SOL Standard:

5 1, 5 **PS** 6 **PH** 5

Supercool: Liquid Nitrogen

Grades 2–8

How do solids, liquids and gasses react to super cold temperatures? Make predictions and observations as pennies shatter, balloons shrink and plants crumble.

SOL Standard:

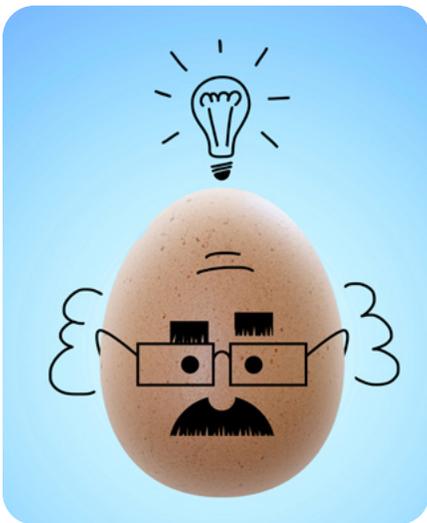
2 3 **5** 7 **6** 5, 6, 7 **PS** 2, 5



Engineering Challenges

Our challenges are an opportunity for students to investigate scientific phenomena while working collaboratively to imagine, plan, create, test and improve on solutions to design challenges. Students will use their own creativity and real scientific tools to evaluate their creations. Engineering challenges are approximately 45 minutes long. Class size is limited to 35 guests, depending on space availability.

Live Science Programs are available during weekday operating hours. Add a Live Science Program for \$4 per person. A minimum of 10 guests are required to reserve a Live Science Program.



Catapult Competition Challenge Grades 9–12 (Physics)

Students will use their engineering skills to construct a working catapult. When done, they will compete to see which team's catapult can launch a projectile the farthest. This activity encourages a quick scientific investigation and students' skills in mechanics and physics come into play.

SOL Standard:
● PS 5 ● PH 4, 7

Egg Drop Challenge Grades 3–12

Have you ever received a package and the item inside was broken? Protecting items from breaking during shipping is a big business! Design a structure that can protect an egg from a two-story drop by measuring kinetic and potential energy as well as energy transfer. And it's just fun to drop eggs.

SOL Standard:
● 5 1, 3 ● PS 5 ● PH 4

Forces of Flight Challenge Grades K–7

Explore the four forces of flight and discover the fun of scientific investigation while creating and testing your own gliding machine that can hover in our vertical wind tunnel.

SOL Standard:
● 1 1, 2 ● 3 1, 2 ● 5 1, 3

Mass and Motion Challenge Grades 4–8

Work in groups to build a bobsled and time how long it takes to travel down the track. What variables can be changed to make it go faster or slower?

SOL Standard:
● 5 1, 3 ● PS 5, 8

Renewable Resources Challenge Grades 3–8

What are renewable and non-renewable resources? What renewable energy resources is Virginia using today? Explore solar or wind energy as you design, construct and test a renewably powered device.

SOL Standard:
● 3 1, 8 ● 5 1, 9 ● 6 1, 9 ● ES 6

Video Controllers for Humanity Grades 7–12, 1 ½ hour activity

Learn about circuitry and the design process through the creation of video game controllers. Using Makey Makeys, students will create their own controllers based on socially impactful and challenging parameters. No controller is complete until it's been tested, so buckle down to evaluate your creation—all in the name of science.

SOL Standard:
● PS 1 ● PH 1, 8



Workshops

Workshops provide students with an opportunity to investigate a scientific phenomenon facilitated by a Science Museum educator. Workshops are approximately 45 minutes long. Class size is limited to 35 guests, depending on space availability.

Live Science Programs are available during weekday operating hours. Add a Live Science Program for \$4 per person. A minimum of 10 guests are required to reserve a Live Science Program.



It's in the Genes

Grades 6–12

Why do we look like we do? Explore the world of genetics and see how characteristics get passed on from parents to offspring. Learn about how genes, heredity and environmental factors influence the way organisms look.

SOL Standard:

LS 10 BIO 5

Magnets

Grades K–2

Explore characteristics of magnets and discover some of their everyday uses!

SOL Standard:

K 1, 2 2 1, 2

Owl Pellets

Grades 3–8

Where do owls belong in the food web? Are they a predator or prey? Students will find out when they become wildlife biologists and dissect an owl pellet. Can students see *hoo* was for dinner?

SOL Standard:

3 1, 4, 5 4 1, 3 LS 4, 5, 6, 7

Plants and their Pollinators

Grades 3–5

Explore parts of plant anatomy as we identify local pollinators and examine their importance in our ecosystem. What role do pollinators play with plant reproduction and what happens if they disappear?

SOL Standard:

4 1, 2

Preparing for a Hotter and Wetter Virginia

Grades 9–12

Extreme heat and rain events are already becoming more common here in Virginia. How can we leverage design, engineering and natural landscapes to make our houses more resilient to these changes? Students will learn actionable steps they can take at home to become more resilient today.

SOL Standard:

ES 1, 2 BIO 8

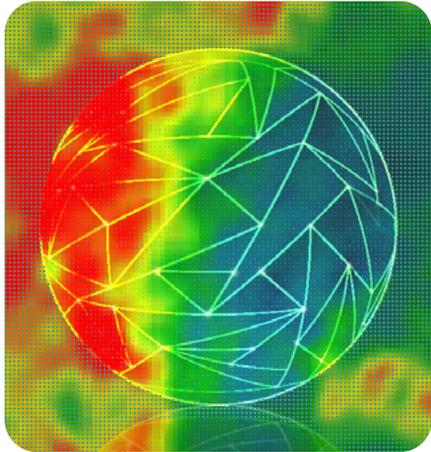




Science on a Sphere®

Explore the Earth and our solar system as never before on this room-sized animated display. Explore weather and climate, the planets, volcanoes and more! Science on a Sphere® demonstrations are approximately 20 minutes long. Class size is limited to 25 guests.

Live Science Programs are available during weekday operating hours. Add a Live Science Program for \$4 per person. A minimum of 10 guests are required to reserve a Live Science Program.



Climate Resiliency

Grades 6–12

What can we do as individuals and communities to be resilient as the climate continues to change? An educator will guide your students in a data-driven, deep dive into the science of climate change and community resiliency.

SOL Standard:

6 6, 7 LS 8 ES 1, 2

Earth Science

Grades 5–8

Discover how plate tectonics have shaped our world. See where volcanoes are located and earthquakes happen in near real-time! Track natural disasters from the past before taking a closer look at more recent occurrences that have impacted the world.

SOL Standard:

5 8 ES 7

Weather Junior

Grades K–2

What is weather? Come get wind of the basics of weather and seasonal changes and learn how these processes affect living things—not just outside playtime.

SOL Standard:

K 1, 8, 9 1 1, 7 2 1, 6, 7

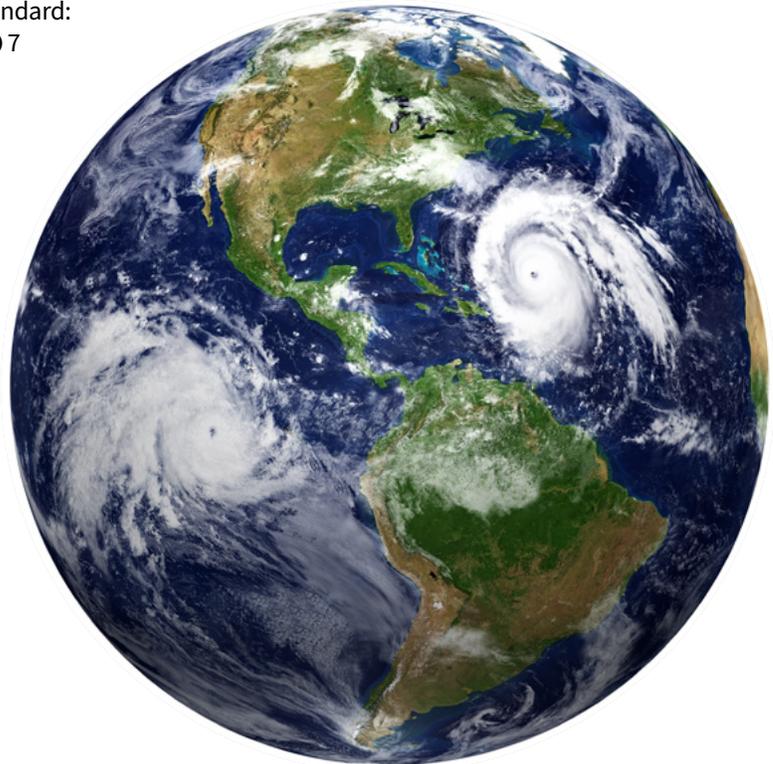
Weather vs. Climate

Grades 3–5

What is the difference between weather and climate? See how heat is distributed around the planet and learn about hurricanes, typhoons and cyclones.

SOL Standard:

4 4 6 4, 7 ES 10, 12





Carpenter Science Theater Company

Our professional tale tellers deliver intriguing science stories with energy and style for our guests. Performances run between 15 and 20 minutes in length and can accommodate up to 120 guests, depending on space availability.

Add a performance to your Science Museum visit when you register for no additional fee. Available Tuesday through Friday. A minimum of 10 guests are required to reserve a performance.



Behave Bug!

Grades 2-5

Meet the indefatigable Charles Henry Turner as you enjoy a colleague's light-hearted and fun recollection of a brilliant, but sadly overlooked, scientist.

SOL Standard:

2 4, 5 3 5 4 3

Carl the Crab Goes Golfing

Grades K-3

Carl the crab meets a basking shark while golfing on the ocean floor. At first he is frightened, but they become fast friends once he realizes that she would rather help him with his golf game than eat him.

SOL Standard:

K 4, 7 1 5 2 5 3 4, 5 4 3

Masked Pollinator

Grades 2-5

Join our host and panelists in this wacky game show to determine who are the pollinators behind the masks!

SOL Standard:

2 4, 5, 8 3 4, 5 4 2, 3

Shine Bright Speed Light

Grades 3-8

A fun look at how visible light travels at the same, finite and constant speed, no matter what the source. This adventure includes silliness, music and a little magic.

SOL Standard:

3 2 5 6 PS 7

Something's (A)Foote With Eunice

Grades 6-12

A sassy telling of the overlooked, 19th century female scientist who was the first to demonstrate the heat trapping effects of certain gases and theorize about their interaction with the Earth's atmosphere.

SOL Standard:

ES 6, 11

Susie Sleuth

Grades K-5

Susie the sleuth sets out to solve the mystery of whether the *T. rex* was truly a predator or simply a scavenger. During her silly shenanigans, she stumbles upon some evidence and asks the audience to help her draw a conclusion.

SOL Standard:

K 1, 7 1 1, 5 2 2, 5 3 1, 4 4 1, 2, 3 5 1

Twyla Meets a Monster

Grades K-5

Story of Twyla the garden spider who fearfully encounters the great tarantula migration in the barren lands of northern Texas. She befriends one tarantula named Bubba, who requests her assistance. Upon realizing she is safe, Twyla happily obliges.

SOL Standard:

K 7 1 5 2 5 3 4 4 2, 3



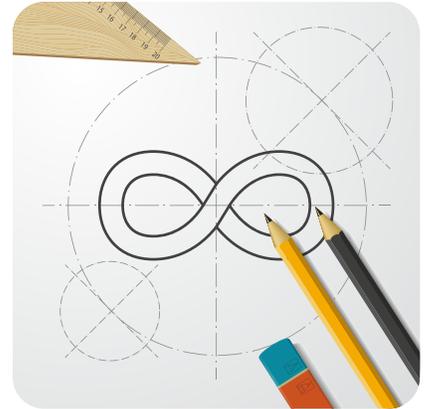
Teacher Workshops

Teachers need time to explore and learn just like their students!

Half-day sessions are \$25 per teacher and full-day sessions are \$50 per teacher. Both sessions have a max of 15 participants per session. Contact TheForge@smv.org to learn more.

Maker Mindset

Flex your own “maker mindset” and join us for a day of experimentation, prototyping and invention in *The Forge*. Teachers will work together on creative challenges, create their own prototypes/projects for use at their schools, and have hands-on experience with a variety of tools and equipment. Through these project-based experiences, these sessions will assist and inspire teachers in implementing hands-on, maker-based learning in their own classrooms.



Make the Most of Your Visit

Lunch Time!

Groups at the Science Museum during lunch should plan to bring their own lunches or snacks. We will work to schedule your lunch time to help you maximize your visit. A lunch spot or time is not guaranteed, so please be prepared to eat on your buses or on the lawn if no spots are available.

Please note, the Science Museum cafe does not provide group lunch options and is not available for group lunch seating.

Need Assistance?

The Science Museum has been working to remove obstacles to ensure all guests have a great experience. If you or any of your students need assistance—mobility, hearing, sensory, etc.—please speak with a member of our Group Adventures team to learn about what services are available.

Also check out our Curiosity Guide online to help prepare for your visit.

Gift Shop

Keep the fun going at home by stopping by our gift shop! From toys and kits to books and keepsakes, scientists of all ages will find something they love. Please ask your students to keep their bags closed in the Science Museum during their visit.



© STEVEN INGE MEDIA



© SEAN DEWITT PHOTOGRAPHY

The Science Museum of Virginia is located at: 2500 West Broad Street
Richmond, Virginia 23220
804.864.1400 smv.org

Science Museum Hours

Day After Labor Day - February 28:
Tuesday - Sunday, 9:30 a.m. - 5 p.m.

March 1 - Labor Day:
Seven days a week, 9:30 a.m. - 5 p.m.

For groups of 10 or more, the Science Museum offers these special discounts:

Exhibits + Dome + Live Science Program: \$18/person
Exhibits + Dome: \$14/person
Exhibits + Live Science Program: \$14/person
Exhibits Only: \$10/person
Additional Live Science programs: \$4/each per person

Please note that our Front Circle is both for loading/unloading and for guests driving to the parking deck. To ensure guest safety, bus drivers should extend their bus's stop sign and turn on its flashing lights when loading/unloading guests. Once complete, bus drivers should retract the stop so traffic can flow in the loop. Buses should follow the bus parking signs. **Please do not park in the parking deck. Buses do not fit in the deck and attempting to park in the deck can cause damage to the bus and parking deck.**

Field Trip Grant Funding

The Science Museum is known for memorable and unique adventures. To make that accessible to all, we have grant funding available for group visits in September, October, January or February. Funds are available on a first-come, first-served basis. To request aid for your upcoming adventure, simply email groupsales@smv.org and include your organization's information, mission and verification of your Title 1 or low-income status.

Group Booking Policies

We strive to give all guests the best experience possible, so we staff appropriately to support group visits. To allow us to provide an unforgettable experience for your group, we ask that you observe the following group policies:

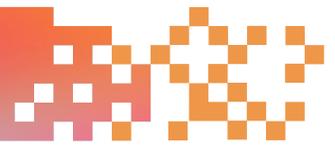
- To book a Live Science Program, reservations must be made **two weeks in advance**.
- Payment and final group count is due **two weeks prior to arrival** and can be made by check, credit card or purchase order. If you require an invoice for payment, let a Group Adventures Associate know when you book your visit.
- Payment will be due at booking for visits booked within two weeks of arrival.
- Because groups of 10 or more enjoy a special price for personalized visits, individual memberships and other discounts are not valid toward group admission fees.
- To ensure the best experience for all of our guests, we request groups bring **one chaperone for every 10** guests in your group.
- On the day of your visit, if additional guests join your group (including non-staff chaperones), those guests will receive the general admission price. Please note that space in Live Science Programs or in The Dome is not guaranteed for guests added the day of your visit.
- If you have to cancel your visit, we ask that you notify us within 48 business hours of your visit to receive a refund. Visits canceled **within 48 hours** will receive a refund, less a \$95 administrative fee.

Contract the Group Adventures team at 804.864.1400 or fill out our online reservation form at smv.org to book your visit today.

Please visit smv.org to read our operating policies.



Digital Demos



If you're looking for a scientific adventure, but you're unable to come to the Science Museum, consider a Digital Demo!

Digital Demos, sponsored by the Virginia Lottery, are live, virtual lessons that are highly interactive and designed to involve students in STEM through inquiry, hands-on activities and demonstrations.

Digital Demos range in length from 30-45 minutes. Digital Demos are \$150 per lesson for up to 90 students.

Demos are available Tuesday-Friday (year-round), with start times at 9 a.m., 10 a.m., 11 a.m., 1 p.m., 2 p.m. or 3 p.m. After school hours are available on request.

We have grant funding available to make Digital Demos accessible to all. To request aid for your upcoming adventure, simply email groupsales@smv.org and include your organization's information, mission and verification of your Title 1 or low-income status.

Visit smv.org/virtualadventures to learn more about technology requirements and how to best prepare for your Digital Demo.

Presented by:



VIRGINIA LOTTERY



Digital Science Demos

Max 90 Students

Engage with a Science Museum educator as you explore anatomy, chemistry and physics!

Amazing Animals

Grades K-7

Have an up close encounter with snakes and cockroaches! Find out what different animals need to survive in their environment. And come on, who doesn't love animals?

SOL Standard:

K 6, 7 **1** 5 **2** 4, 5 **3** 4 **4** 2
LS 6, 7, 8, 11

Brain Dissection

Grades 5-12

Watch an educator dissect a sheep brain while learning its different parts and functions. How does your brain work? We'll cover the brain and its role in the nervous system.

SOL Standard:

LS 2 **BIO** 3 **PH** 6

Cow Eye Dissection

Grades 5-12

You won't believe your eyes! Watch an educator dissect a cow eye while explaining its different parts and functions. Can cows see color? Do our eyes change over time? Learn about the eye/brain system by comparing the difference between human eyes and cow eyes.

SOL Standard:

LS 2 **BIO** 3 **PH** 6

Heart Dissection

Grades 5-12

Watch an educator dissect a sheep heart while explaining its different parts and functions. How does your heart work? Learn about the cardiovascular system by comparing a sheep heart to a human one.

SOL Standard:

LS 2 **BIO** 3

Radical Reactions

Grades 6-12

Chemistry is at its coolest when you put it into action! See four types of chemical reactions, learn the difference between exothermic and endothermic reactions, and watch a colorless liquid turn blue once shaken...not stirred.

SOL Standard:

6 5 **PS** 3 **CH** 5, 7

Supercool

Grades 2-8

How do solids, liquids and gases react to extremely cold temperatures? Watch wide-eyed as pennies shatter, balloons shrink and plants crumble. Observe matter change state right in front of you!

SOL Standard:

2 3 **5** 7 **6** 5, 6, 7 **PS** 2, 5

Digital Hands-on Engineering Challenges

Max 30 Students

Have fun with a Science Museum educator as we investigate scientific phenomena while working collaboratively to imagine, plan, create, test and improve upon solutions to design challenges. We'll send you a list of common materials you will need to have ready before the lesson.

Build a Better Parachute

Grades 2-7

Gather your supplies and your favorite small object and work with us to design a better parachute! We'll practice our engineering skills as we work on this challenge together.

SOL Standard:

2 2 **3** 1, 2 **4** 1 **5** 1, 3 **PS** 1

Forces of Flight

Grades K-7

Explore the four forces of flight and discover the fun of scientific investigation while designing and testing your own paper airplane. Is yours better than our educator's?

SOL Standard:

1 1, 2 **3** 1, 2 **4** 1 **5** 1, 3 **PS** 1

Ready to book?

Visit smv.org/virtualadventures to submit your online request form or call us 804.864.1400!