

# science ON THE road

SERVING PA, OH, MD, WV...and beyond!

we come to you!



Kids don solar panels  
in *SolarQuest*—new!



CARNEGIE SCIENCE CENTER

2014 – 2015

# science ON THE road

2014–2015

## How To Use This Book:

Just follow these simple steps. Our Reservations team will help you plan an exciting and unforgettable experience—all without leaving your school!

### 1 Gather your information.

We will need the following information to book your program:

- Contact and billing information
- Program date(s) and time(s)
- Program location
- Group grade level and number of attendees
- Selected programs
- Special needs
- Any questions you may have

### 2 Call our Reservations team at 412.237.3400, then press 7.

One of our staff will take your information, answer any questions or concerns you may have, and schedule your programs. We also will explain confirmation and payment procedures. We can even book a field trip or group visit, if you like! Travel and hotel fees may apply.

### 3 That's it!

A Science Center presenter will arrive at your location at the appropriate time to set up and present your program(s). All you provide is the space, and the only things your kids need to bring are their brains and some enthusiasm!

#### For Those Who Prefer Info Online...

Visit [CarnegieScienceCenter.org/SOR](http://CarnegieScienceCenter.org/SOR) for more information.

#### When you call...

Consider booking a field trip as well! Field trips to the Science Center provide inspiration that carries students back to the classroom primed and ready to learn.

bring engaging science experiences to your school!



Educators are under a lot of pressure. We understand that it can be difficult to fit a field trip into your busy classroom schedule. That's why we've developed a wide array of cost-effective programs that require no legwork, little planning, and absolutely no school buses! **Science on the Road brings high-energy science programs and hands-on activities to your site for grades Pre-K–8.**

**Every program is carefully tailored to the appropriate grade level and is aligned with national and Pennsylvania academic standards and assessment anchors to help support your educational goals.**

We aspire to ignite a passion for science in every student and provide convenient, superior science education opportunities to schools! We want students to relate in-school studies to potential careers in STEM—science, technology, engineering, and math. That's why we established our Chevron Center for STEM Education and Career Development, backed by strong financial support from Chevron and founding partners Bayer, California University of Pennsylvania, Duquesne Light, LANXESS Corporation, Kennametal Foundation, Eaton Corporation, NOVA Chemicals, and PPG Industries Foundation.



# science experiences

Our Best Value Science Experiences feature an assembly, plus adventure stations! Our dynamic science shows are jam-packed with spectacular science, awe-inspiring demos, and hands-on activities that students will love—and that reinforce classroom concepts!

Each participating class will experience two rounds consisting of a 1-hour assembly plus 45-minute adventure stations. Our staff can accommodate up to 480 students for up to a full day.

Capacity: 480 students  
Fee: \$850 all inclusive for programming

**what you'll need:**  
12-15 adult volunteers, high school students, or combination of both. (Your Science Center presenter will conduct a training workshop for volunteers 45 minutes before the first scheduled group.)

**Grades 1-8**



## Wild By Design: Innovations from A to Zoo

Content themes: Zoology, Physics, Engineering, Regional Science

When engineers want to make something better, faster, or stronger, they look for the answer in nature! Join local zookeepers, chemists, and robot designers (and some on-screen zoo animals) on a biomimetic adventure to discover technology inspired by the natural world. Explore how the physics of whale flippers are improving wind turbine designs, and test a “gravity-defying” slow motion slinky to study how innovative robot arms are inspired by an elephant’s trunk.

Produced in partnership with

Special thanks to Pittsburgh Zoo & PPG Aquarium

## Captain Green’s Time Machine

Content themes: Conservation, Ecology, Climate Change

Join Captain Green on a quest to save the environment. Travel to ecosystems around the globe as you learn about the science of climate change in rain forests, oceans, and polar ice caps through demonstrations of fiery methane bubbles and colorful dry ice chemistry. Explore renewable energy technology with a windy demonstration of lift. Take control of “Spaceship Earth” as you race against time to create a sustainable future!

Produced in partnership with

## Colossal Fossil Fuels

Content themes: Geology, Energy, Paleontology, Regional Science

It’s an epic energy adventure millions of years in the making! Journey through time in search of coal, oil, and natural gas. Travel to Prehistoric Park, roar with ancient animals, and discover the plants and plankton that became fossil fuels. At Rockbuster Rig, use compressed air and electricity to extract underground fuel deposits.

Produced in partnership with

Special thanks to Carnegie Museum of Natural History

## Ion Jones and the Lost Castle of Chemistry

Content themes: Chemistry, States of Matter, Regional Science

Discover the hidden treasures of chemistry in this action-packed adventure! Team up with “Ion” Jones and real PPG scientists on a global quest to collect the elements. Test your materials science mettle in the Dunes of Silica, and ignite the Mountain of Fire. By the time your students reach the castle, they will have observed chemistry in action—from catalysts to combustion!

Produced in partnership with



### NEW! SolarQuest

Content themes: Astronomy, Physics, Technology, Environmental Science

Blast into orbit around the Earth with NASA’s Solar Dynamics Observatory. Embark on a quest to learn about our friendly neighborhood star—the Sun! Explore the Solar System and learn why Earth is just right for life. A balloon-popping laser introduces photosynthesis with a bang! See yourself in infrared and learn how satellites explore the greenhouse effect. Predict the pitch of singing fire tubes and learn how satellites “listen” for sunquakes. Exploding hydrogen and fire tornadoes take you to the surface of the Sun! This show features real images from space, audience participation, and demonstrations that are out-of-this-world!

SolarQuest: Living with Our Star in partnership with



### Rockin' Robots: World Tour

Content themes: Robotics, Engineering, Technology, Regional Science

Juice your circuits, and groove to the binary beat! Meet Quasi the Robot, a childlike animatronic robot who dreams of adventure, and help him design and deploy a heroic band of 'bots to help humanity! Interact with real robotic technology as you take the World Tour. By the end of the show, Quasi will have explored land, sea, and space on his journey to become a rockin' robot!

Produced in partnership with **CALU**

Special thanks to Katherine Mabis McKenna Foundation and C.W. Benedum Foundation

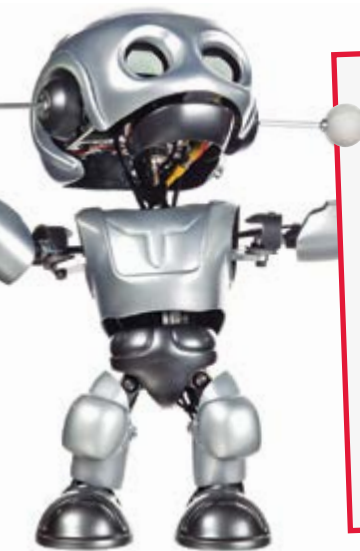


### COMING SPRING 2015! Grand Slam Science!

Content themes: Physics, Biology, Materials Science, Mathematics  
Batter up! Discover the science behind America's favorite pastime, from the physics behind your favorite pitches to the science of the perfect swing. Step up to the plate for exciting demonstrations that will leave your students ahead of the curve! Find a bat's "sweet spot," measure reaction time, or predict a ball's trajectory. Our science scoreboard features the Pittsburgh Pirates, slow motion footage, and animations illustrating the physiology of the human body and the aerodynamics of a baseball in flight. You'll be "rootin' for Newton" through seven interactive "innings" of physics fun. Round the bases with a legendary line up of live demonstrations, then slide into home for a fireworks finish that's sure to be a blast!

Special thanks to the Pittsburgh Pirates.

Produced in partnership with



### Try an hour-long assembly!

Capacity: 250 students  
Time required: 45–60 minutes  
Grades: 1–8  
Fee: \$475 includes set-up and one presentation

If you're short on time or space, try one of the programs on the preceding pages as a stand-alone assembly show, to create a program that works with your schedule and budget. These programs come with lots of great bells and whistles, just like our best value science experiences. These short assemblies will make a huge impact on your students!

Visit [CarnegieScienceCenter.org](http://CarnegieScienceCenter.org) for more info about requirements, guidelines, and standards.

# assembly programs

The dynamic action in our science assembly programs includes audience participation, fun-filled demonstrations, and live experiments with creative props.

Capacity: 250 students  
Time required: 45 minutes  
Fee: \$375 includes set-up and one presentation; \$175 for each repeat presentation.



### Forces, Matter, and Motion!

Content themes: Physical Science, Human Endeavors  
From bowling balls to Einstein's gravity wells, experience the forces that keep you in your chairs, as well as the planets and stars in their orbits! Take part in high impact demonstrations of Newton's Laws as this show smashes, crashes, and blasts you on a tour of universal forces and ever-changing forms of energy.

For grades K–8

### Fire and Ice

Content themes: Energy, States of Matter  
Students learn about combustion and the fire triangle, then see what happens when objects are frozen at 320° below zero in liquid nitrogen.

For grades K–8

### Light Fantastic

Content themes: Chemistry, Light  
In this program, vibrant demonstrations illuminate the chemistry of light and lasers. Explore the chemistry of color in an interactive show themed to the Periodic Table of Elements.

For grades K–8

Sponsored by: **IVI** Foundation

### Take a Hike: Backyard Biodiversity

Content Themes: Biodiversity, Technology, Regional Science  
Become a field biologist on a trek through Appalachian woodlands, waterways, and even clouds! Follow in the footsteps of trailblazing ecologist Rachel Carson. Listen up to identify migrating songbirds by their flight calls. Our fiery solar array and "instant compost" chemistry bring the Great Outdoors into the lab. Team up with local conservationists and be a "Habitat Hero" in your own backyard!

For grades K–6

Supported by **The Spring Program**, an initiative of **The Sprout Fund** in partnership with **The Pittsburgh Foundation**.



### Amazing Bugs

Content themes: Biology, Human Endeavors, Environmental Science, Ecosystems  
Bugs are among the most diverse living things on the planet, but how much do you really know about them? Can you tell an insect from an arachnid? Join us to explore the nature of these helpful, sometimes harmful, always amazing bugs!

For grades K–4

Developed in partnership with **Carnegie Museum of Natural History**

# earth & space experience



**Science on the Road's NEWEST Best Value Experience** features both the giant Earth Balloon and the Digital Planetarium. Ignite your students' imaginations and allow them to experience the true scale of their home planet or the universe itself!

Grades K–2 will experience the Earth from inside our 18-foot Earth Balloon, while grades 3–5 will be immersed in space from inside the Digital Planetarium Dome. These programs will run simultaneously in your gymnasium, in 30-minute sessions, tailored to each grade level.

[Call for details about scheduling the Earth Balloon AND Digital Planetarium.](#)

**Capacity:** Up to 16 sessions with up to 30 students each  
**Time required:** 30 minutes per session  
**Fee:** \$850  
**Requirements:** 20' ceiling height, 50' x 50' floor space, and electrical access.

## Earth Balloon

This 18-foot inflatable globe provides an immersive experience in geography and environmental science as you see the Earth from inside and out.

**Capacity:** 30 students  
**Time required:** 45 minutes  
**Fee:** \$240 includes set-up and two presentations (*shows can be different*); \$120 for each additional presentation.  
**Requirements:** 18' ceiling height, 30' x 30' floor space, and electrical access.

**Earth Balloon and Digital Planetarium also available separately!**

### AVAILABLE PROGRAMS:

**For grades Pre-K–3rd grade:**

#### Introduction to Geography

Take a trip to each continent and voyage over every ocean. Students learn to identify land masses and bodies of water while discovering exciting facts about our world.

**For grades 4–6:**

#### The Extremes

From the top of Mt. Everest to the bottom of the deepest ocean trench, learn about Earth's extreme environments. Circle the globe, then travel to the center of the Earth.

**For grades 6–8:**

#### Environmental Awareness

Designed for students already familiar with geography, this program provides insight into environmental issues that impact our world and opens discussion for ways students can make a difference.

## Digital Planetarium


Experience the extreme weather and geological features of our solar system's many planets and moons, then rocket beyond the Sun to witness wonders of the universe such as nebulae and black holes. Finally, watch for familiar celestial bodies as we shift from day to night-time sky, highlighting objects your students can see from their own backyards!

**Capacity:** 30 students  
**Time required:** 45 minutes  
**Fee:** \$240 includes set-up and two presentations (*shows can be different*); \$120 for each additional presentation.  
**Requirements:** 12' ceiling height, 20' x 20' floor space, and electrical access.

### AVAILABLE PROGRAMS:

**Pre-K–2nd grade:**

**One World, One Sky: Big Bird's Adventure** follows Elmo and Hu Hu Zhu, a Muppet from the Chinese co-production of *Sesame Street*®, as they go on an exciting trip to discover the Sun, Moon, and stars.

Made possible by:  PNC FOUNDATION

**Kindergarten–2nd grade:**

**Moving Right Along** is an introduction to Earth's rotation and revolution and how those movements affect our view of the sky.

**What's Up** explores what we can see in the sky (stars, planets, the Moon) and differences between those objects.

**Grades 3–5:**

**Planets** explores the differences between stars and planets, how we can recognize a planet in the night sky, and planetary motion.

**Moons of the Solar System** explores differences between planets and moons and introduces students to major moons of the solar system.


**Grades 6–8:**

**Solstice and Equinox** explores the relevance of solstices and equinoxes, including how they relate to the seasons we experience.

**World in Motion** explores what is in motion in our solar system. The Earth's movements give us the day and the year. Gravity keeps planets in orbit around the Sun and the Moon in orbit around the Earth. Learn how to recognize a planet in the night sky, and prograde and retrograde planetary motion.

## GET A FREE ASSEMBLY!



The Shop 'n Save® S.E.E.D. program will bring any program listed with this icon  to your school at no cost to you. Shop 'n Save has now made it even easier to earn your S.E.E.D assemblies. Simply go online and designate your school to receive the points you earn when you shop! No more collecting paper receipts!

### It's easy as 1, 2, 3:

1. Get a Shop 'n Save Perks Card and register it on the Shop 'n Save website: [www.ShopNSaveFood.com/Perks/PerksCard/PerksCardRegistration.aspx](http://www.ShopNSaveFood.com/Perks/PerksCard/PerksCardRegistration.aspx) Part of the registration process will be to designate a school.
2. Swipe your Perks Card each time you shop at Shop 'n Save. Purchases will be automatically added to the linked school's total, contributing to the goal of \$250 per student required to earn educational S.E.E.D assemblies.
3. When you have accumulated enough points, book your assembly!



# preschool scientists

## NEW! Ready, Set, Roll!

Tackle the 'E' in STEM (engineering) as you build your own ramp, then test how far your ball can roll!

*Looking for a more in-depth experience with ramps? Ask about our NEW four-week classroom residencies.*

## Animysteries

Explore your senses through the mystery of animal communication!

## Bubble Science

Explore the 'S' in STEM (science) with amazing bubbles and bubble blowers.

## Creepy Crawly

Investigate insect parts and behavior through song and dance, and make bug antennae to take home.

## DUPLO® Math

Practice your building, sorting, and pattern-making as you put the 'M' in STEM (math) with Duplo building blocks.

## Hello Robo!

What is a robot and what does it do? Learn about the 'T' in STEM (technology) as you interact with some robots!

*This project is produced in partnership with Spark, a program of The Sprout Fund.*



## Pop, Pop, Popcorn!

Discover how corn looks, feels, and grows, then get popping to learn how it tastes.

## Rah, Rah, Recycling

Help a fishy friend clean up his river home, then create an environmentally friendly project.

## Wiggly Worms

Open your eyes to the world of worms through literature and observing live composting worms.

**Earth & Space Experiences**  
See pages 6–7 to learn more.

Capacity: 30 students  
Time required: 45 minutes  
Fee: \$120 for each presentation.



# preschool assemblies

Capacity: 200 students  
Time required: 30 minutes  
Fee: \$375 includes set-up and one presentation; \$175 for each repeat presentation.

## Up in the Air

How do we know the air is there? Is anything lighter than air? Investigate these questions and be blown away by our amazing air and wind devices.

## Big Sound, Little Sound

Identify animal sounds and investigate how musical instruments work. Explore the differences between high and low, loud and soft sounds...then make some noise yourself!

Attend a Family Science Night for Early Learners! See page 11 to learn more.

# discovery days

These fun presentations allow you to expand on important themes in your curriculum with engaging hands-on activities.

Capacity: 30 students  
Time required: 45 minutes  
Fee: \$120 for each presentation.

GRADE	S.T.E.M.	BIOLOGICAL SCIENCE	PHYSICAL SCIENCE	CHEMISTRY	EARTH & SPACE SCIENCE
K	<b>"M" is for Math</b> "Count" your skills using coins and cash registers. Then go shopping!	<b>Magnifying Marvels</b> Use compound microscopes to view insect parts, feathers, and more.	<b>Making Sense of Sound</b> Test this energy source in novel ways to see how it is produced.	<b>Bubble Science</b> Explore the nature of bubbles with amazing bubble blowers.	<b>Space as Home Base</b> Explore space, gravity, and distance between objects in space.
1–2	<b>"S" is for Science</b> Spin the wheel of chance that will decide your science topics for the day!	<b>Fight, Flight, or Fool</b> Dig up some dirt about survival techniques used by insects.	<b>Circuit City</b> Experience magnetism and electricity at work.	<b>Chemical Concoctions</b> Stir up some concoctions to take home.	<b>Weather the Storm</b> View the water cycle in action, then cook up a storm.
3–4	<b>"T" is for Technology</b> Explore the science behind computers, GPS technology, and more.	<b>What Tracks Tell Us</b> Examine animal tracks to discover habits and adaptations of North American wildlife.	<b>Lift Off</b> Get the scoop on Bernoulli's Principle to lift objects.	<b>Chem in a Bag</b> Conduct experiments that produce exciting temperature-changing results.	<b>Spacewalking: Do You Have What It Takes?</b> Discover the effects of pressure, high-speed impacts, and more.
5–6	<b>"E" is for Engineering</b> Test your skills as an engineer. Take the challenge!	<b>Who Are You?</b> How do your chromosomes and genes make you... well, <i>you</i> ?	<b>Sparks Anyone?</b> Witness shocking experiments that create noise and great visual effects.	<b>Slime Olympics</b> Investigate different kinds of slime through experimentation.	<b>Color and Light</b> Discover what stars are made of and experiment with UV light.

## ...and just for PRE-K TEACHERS!

### teacher professional development workshops

Looking for a way to brush up on your science skills? Let Science on the Road come to your school district with a program designed just for preschool teachers. Stay current with hands-on science activities and teaching methods while having tons of fun. May provide ACT 48 credits.

**Themes include:** Soapy Science; On a Roll with Ramps; Creative Use and Reuse.

Capacity: 30  
Time required: 90 minutes  
Fee: \$200  
Requirements: Assembly space with table space for teachers to work.

# science of health

These programs are designed to support health educators as they teach students the facts about reproduction. Our experienced educators present more than 100 programs each year.

**Capacity:** 50 students per session  
**Time required:** 90 minutes, plus Q & A  
**Fee:** \$225 per session (including up to 30 students); \$6 for each additional student, up to 50 total per session.

## Wonder of Wonders (WOW)

*Includes optional presentation All About HIV*

Content themes: Human Body, Genetics

Specially trained health science educators use audiovisual materials to give students important, accurate, and age-appropriate information about puberty, reproduction, the development of new life, and the facts about HIV. This program has been used by dozens of school districts to supplement their health and science education programs.

### Free Parent / Teacher Preview Opportunities

Interested teachers and parents are invited so they can be aware of how sex and reproduction will be presented to their children. Previews end with a question-and-answer session.

*No reservations are required. Parking is additional.  
All previews begin at 7 pm at Carnegie Science Center.*

### Please join us on any of the following dates:

Jan. 6, 2015      April 7, 2015  
Feb. 3, 2015      May 5, 2015  
March 3, 2015

## Special date just for families!

**Tuesday, March 24, 2015**

You're invited to this special event, for parents who prefer to view the program with their child.

*Registration is required.  
Call 412.237.3400, then press 7,  
to reserve your spot.*

*Begins at 7 pm at Carnegie Science Center.*

*Cost: \$10 per child (cash only); FREE for adults*



# club science series



## Spice up any children's gathering!

Use our CLUB SCIENCE Series. Children love our hands-on activities! Parents and teachers love our minds-on science content! Customize to fit your need. Choose an hour, half-day, weekly, or a six-week session from these topics any time of year.

**Capacity:** 25 students

**Fee:** \$125 per hour

Ask about discounts for multiple bookings.

### Bio Brainstorm

Content themes: Animals, Brain, Human Body, Life Science  
Specify K-2 or Grades 3-5

### Cool Chemistry

Content themes: Chemistry, States of Matter, Experimentation  
Specify K-2 or Grades 3-5

### Journey into Space

Content themes: Solar System, Stars & Galaxies, Earth, Flight  
Specify K-2 or Grades 3-5

### Grab Bag Science

Content themes: Magnetism, Engineering, Electricity, Experimentation  
Specify K-2 or Grades 3-5

### Insect Investigators

Content themes: Animals, Habitats, Life Science  
Specify PreK-1 or Grades 2-4

### Wizardry Wows!

Content themes: States of Matter, Chemistry, Experimentation  
Grades 1-4

### Build It Better!

Content themes: Engineering, Motion, Energy, Experimentation  
Grades 1-4

### Robots vs. Humans

Content themes: Technology, Robotics  
Grades 4-6

### Slam Dunk Physics

Content themes: Energy, Motion, Forces, Experimentation  
Grades 4-6

# science is an event!

## Family Science Events

These ready-to-go packages are perfect for school carnivals or parent/child events. Each theme includes multiple table-top activities that take kids and families about 45 minutes to complete. Make something to take home!

Capacity: 150  
 Fee: \$400 for two hours of activity time  
 Requirements: 12–15 volunteers to monitor tables. Training will take place 30 minutes before event.

### Choose from these topics:

- **NEW!** Secrets of Sun and Space (UV ring)
- Earth's Riches & Resources (Fossil cast)
- Feel the Force (Shrinky Dink necklace)
- Chemistry (Silly Putty)
- Eyes on the Environment (Biodegradable sculpture)
- Rockin' Robots Review (Robot binary code bookmark)

## Early Learner Family Science Events

All the fun of our regular Family Science events made especially for the smallest scientists and their families!

Capacity: 150  
 Fee: \$350 for two hours of activity time  
 Requirements: 12–15 volunteers to monitor tables. Training will take place 30 minutes before event.

### Choose from these topics:

- Icky, Slimy, Sticky
- Spring into Science
- Hello Robo!
- Art and Science



## Science Make & Take

Great for festivals, carnivals, games, and other casual affairs—anytime you want unique activities to entertain the crowds. Everyone who visits our activity table gets to make something to take home! Choose from a variety of science activities like harmonicas, ultraviolet detecting rings, bubble-ariums, and liquid nitrogen activities.

Capacity: 50–100 people per hour (varies based on activity selection)  
 Fee: \$150 for the first hour; \$100 for each additional hour.

## Achievement & Birthday Parties

Where else will you find party themes like Mad Mixtures, Sweet Science, Science-N-Toys, Science with a Sparkle, and Wizard School?

It's a one-of-a-kind bash when the Science Center comes to you with a party package: 1 hour of interactive demonstrations and liquid nitrogen ice cream made right in front of the crowd!

**Science on the Road does special events & parties, too!**  
 Call 412.237.3400, then press 7, today!

# the details:

## REGISTRATION, PRICING, AND FAQs

SCIENCE ON THE ROAD PRICING	INCLUDES	BASIC FEE	ADDITIONAL
Best Value Science Experiences	Up to 480 students	\$850	N/A
Stand-Alone Science Experience Assembly	One presentation	\$475	\$225 each
Assembly Programs	One presentation	\$375	\$175 each
Dome and Earth Balloon	Two presentations	\$240	\$120 each
Earth & Space Best Value Experience	Up to 16 sessions with up to 30 students each	\$850	N/A
Science of Health	Up to 30 students	\$225	\$6/student
Classroom Discovery Days	One presentation	\$120	\$120
Club Science Series (hourly, weekly, or daily)	One-hour session	\$125/hour	\$125/hour
Family Science Events	Two hours	\$400	N/A
Achievement & Birthday Parties	Up to 15 guests	\$225	\$10/guest
Science Make-and-Take	First hour	\$150	\$100/hour

*“Very courteous, helpful staff!”*

## frequently asked questions

### How far will Carnegie Science Center travel?

Anywhere! We've been across Pennsylvania and as far away as Arizona and California.

### Is there a travel charge?

Travel fees may apply, depending on location. Certain locations may also incur an overnight fee.

### What kind of space do you require?

We offer a wide variety of programs scaled to different-sized spaces. Assembly programs work best in a gymnasium or auditorium.

Classroom Discovery Days, Science of Health programs, and Club Science series are designed for smaller spaces. Specific requirements for shows can be found on our website.



# Kids who get science get great jobs.



*Presented by Carnegie Science Center  
and Math & Science Collaborative*



Visit [CarnegieScienceCenter.org/MSS](http://CarnegieScienceCenter.org/MSS) for more information.



## **CARNEGIE SCIENCE CENTER**

One of the four Carnegie Museums of Pittsburgh

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