MICHIGAN Science CENTER

A SMITHSONIAN AFFILIATE

MICHIGAN SCIENCE CENTER

2022 - 2023 Educator Guide

(313) 577-8400 • WWW.MI-SCI.ORG • 5020 JOHN R ST, DETROIT, MI 48202

A message from Anna Sterner, Director of Learning Programs

Dear Educators,

As we enter a new school year, all of us at the Mi-Sci look forward to our next opportunity to engage with your students and to provide them with a safe and welcoming space to spark their next "Aha!" moment. If your group is ready for an in-person field trip, we are thrilled to open our doors to you right here in Midtown, Detroit. We have new stage shows, theater presentations, and exhibit galleries that are sure to "wow" your young scientists on their next visit.

We also understand that not all groups will be able to visit us in person at this time. If you can't come to us, we can bring Mi-Sci to you! Our Traveling Science program serves schools across the state with interactive learning programs for any age and content area. If virtual is the best option for you, we continue to offer our suite of ECHO Distance Learning programs and will launch new online experiences in the 2022-2023 school year. No matter how we connect with your students, be sure that we will let their creativity, interests, and playful nature lead the way as we embark on a "new normal" of STEM learning together.

Across Michigan and around the country, the challenges that face our education system have never been more dire than they are right now. The barriers to accessible STEM education that truly puts students at the forefront are immense and can seem impossible to tackle on your own – but you don't have to! Now, more than ever, the Michigan Science Center reaffirms our commitment to YOU, our fellow educators, who share our mission of inspiring curious minds and preparing the next generation of scientists, engineers, and global citizens. We will work to provide the resources, training, and connections that you need in order to be successful in this important mission.

Despite challenges that we have faced in the past few years, we are moving full steam ahead to rebuild our facility, our programs, and our audiences. As you browse this guide, I hope you will find meaningful experiences that bring joy to you and your students. If there are ways that we can assist you that are not listed here, please reach out to us.

I wish you a wonderful school year and can't wait to see you soon!

"Science-cerely,"

Anna Sterner
Director of Learning Programs

We put YOU at the center of science

The Michigan Science Center is proud to offer a wide variety of experiences designed for onsite, offsite, and online audiences. Take a look through our catalog of program offerings, including field trips, theater programs, Traveling Science workshops, and much more!

	PROGRAM TYPE	PRE K	K-2ND	3RD-5TH	6TH-8TH	9TH-12TH
ONSITE	**Field Trip Experiences**					
	Science Stage	x	x	x	x	x
	Exhibit Galleries and Demo Spaces	x	x	x	x	x
	Level Up	x	x	x	x	x
	Electric Playhouse Travels	x	x	x	x	x
	Planetarium					
	One World, One Sky	x	x			
	Global Soundscapes			x	x	
	Toyota Engineering 4D Theater					
	Volcanoes: The Fires of Creation			x	x	
	Turtle Odyssey		x	x	x	
	IMAX® Dome Theatre					
	Mysteries of the Unseen World			x	x	x
	Asteroid Hunters			x	x	x
	Dream Big		x	x	x	x
	The Great Space Chase Laser Show			x	x	x
OFFSITE	**Science Festivals**					
	SCIENCEPALOOZA		x	x	x	
	Apollo Adventure		x	x	x	
	Group Presentations					
	KABOOMISTRY			x	x	x
	Eureka!		x	x	x	
	Frostology		x	x	x	x
	Discovery Dome (Portable Planetarium)					
	What's Up? Your Guide to the Night Sky		x	x		
	Expedition Solar System				x	x
	Worlds of Water			x	x	x
	Hands-on Workshops					
	Magnets	x	x			
	States of Matter		x	x		
	Egg-pollo 11			x	x	
	Current Events			x	x	
	Oceans Alive			x		
	Wind Turbines			x	x	
	Owl Pellet Dissection		x	x		
	Sheep Eye Dissection			x	x	
	Diving Into DNA					x
ONLINE	**Virtual Visits**					
	Frostology		x	x		
	Know Where It Grows			x		
	Burn Boss Training			x		
	Rad Reactions			x	x	
	Global Soundscapes			x	x	
	Visible Light				x	
	ECHO Live!	x	x	x	x	x

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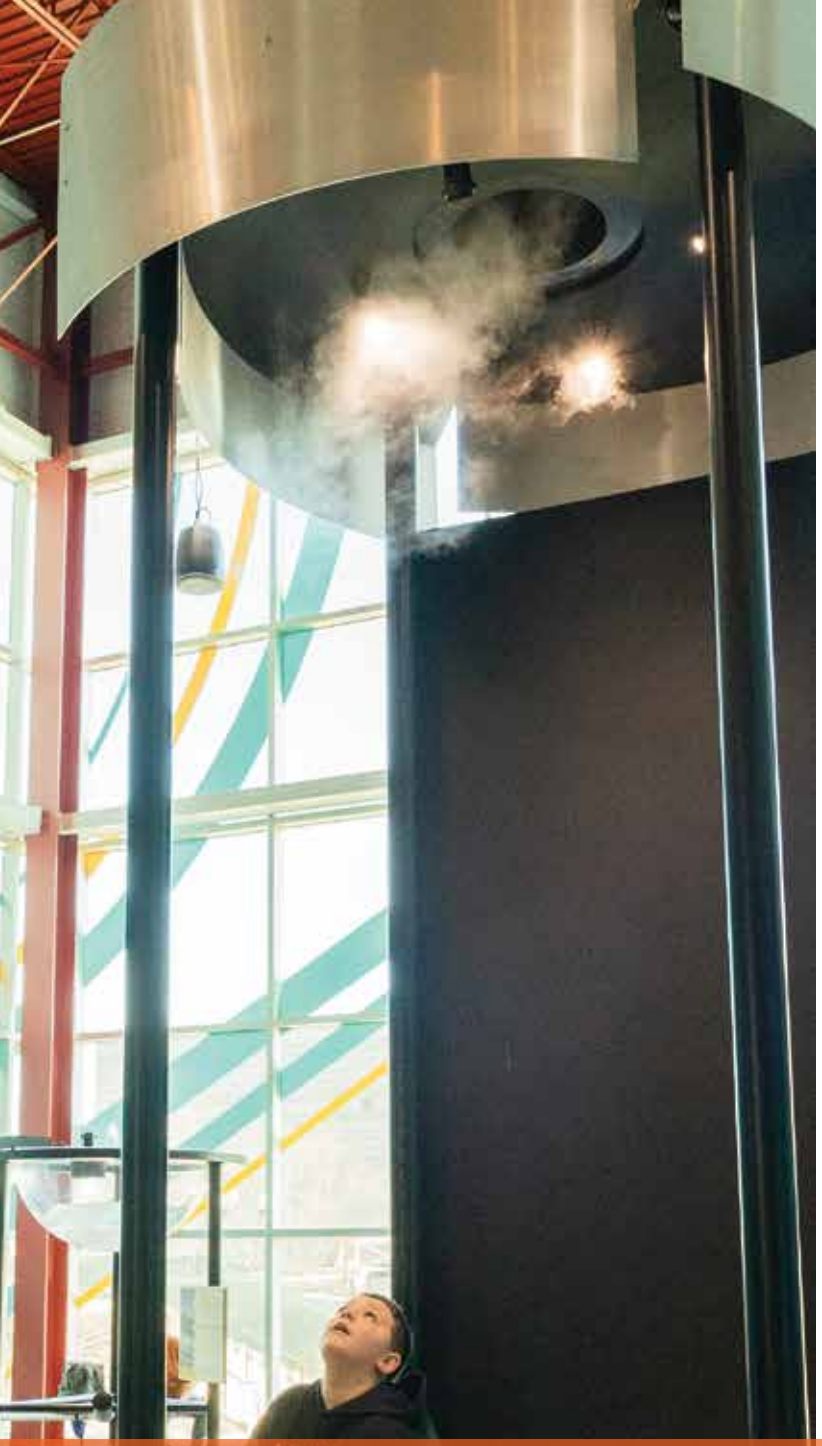


Onsite

Galleries and Demo Spaces

The Michigan Science Center is home to over 220 hands-on exhibits related to science, technology, engineering, and math (STEM). Stop by any of our exhibit galleries or join our museum staff at one of our open demonstration spaces to bring your classroom learning to life!

Smithsonian Spark!Lab

Engage in the process of invention, practice creative and collaborative thinking, and get hands-on with some wacky materials. Spark!Lab is where students are challenged to become inventors and innovators.

Learning Launch Pad

Join our educators and docents for hands-on experiments exploring a variety of STEM topics including chemistry, physics, engineering, life sciences, and technology.

Earth. Wind. Weather.

Earth. Wind. Weather. sponsored by General Motors, features 10 new interactive exhibits that put guests in control of some of nature's most powerful and impressive forces. Create avalanches and geysers, explore Jupiter's otherworldly atmosphere, command ocean waves, step into a powerful tornado, and learn about weather and climate.

STEM Playground

Explore engineering concepts as you construct paper airplanes, make sailboats travel into the wind, design a marble track maze, and play with the pin-bell table. See how engineers design everything around us and the importance of planning and testing when building.

Space Gallery

Marvel at the wonders of the universe as you explore the history of human space travel, learn about rocket technology, tour the galaxy, travel to the sun and more. This gallery features our large-scale model rockets and Apollo training capsule, on loan from the Smithsonian Institution.

Motion Gallery

Tinker with the fundamental properties of matter and energy with circuits, electrical loads, magnetic fields, simple machines, light, and more.

Health Gallery

Discover the importance of good nutrition and fitness, uncover the hidden factors that affect your health both now and in the future, and learn how to make smart choices to improve your health.

Math Mountain

Can you make it up Math Mountain? Try your skills at addition and subtraction as well as multiplication and division and discover how many zeros are in a googol.

Roads, Bridges, Tunnels

Become an engineer as you walk our 80-foot-long Mini Mac Bridge, travel our roundabout, and more.

Waves and Vibrations

From the Seashell Pipes to the walk-in kaleidoscope, this is the gallery to experiment with sounds, colors, reflection, waves, and more.

Nano Gallery

Nano is an interactive exhibition that engages family audiences in nanoscale science, engineering, and technology. Hands-on exhibits present the basics of nano science and engineering, introduce some real world applications, and explore the societal and ethical implications of this new technology.

Sponsors of Science

Michigan Science Center's Sponsors of Science Program supports students for fully sponsored field trips each year. Groups of 20 or more that meet our eligibility requirements may apply to receive sponsored admission and transportation for your entire group. Applications are accepted on a rolling basis.

THANK YOU TO THIS YEAR'S SPONSORS OF SCIENCE

AVL · BOSCH Invented for life · CaresAfit · bsp LAW · Clark Hill · Multimatic · NAVISTAR · neapco · ROUSH · SCHAEFFLER · Strategic Staffing Solutions · WAYPOINT

To learn more and apply:

Level Up

On Exhibit October 19, 2022 - June 30, 2023
This school year, the Michigan Science Center will open “Level Up,” a brand-new prototype exhibit which connects games and gaming concepts to the development of STEM skills and potential careers. The installation is designed for students and demonstrates the acquired skills behind what kids love most – video and analog games – to create interactive, immersive learning experiences that involve both the mind and the body. The exhibit is made possible by General Motors.

Level Up will feature the following zones: video games, analog and board games, virtual reality, an arcade zone featuring Games for Change, as well as an Ames Room optical Illusion experience. Electric Playhouse Travels is a special feature within Level Up, available for a limited time, through January 3, 2023. Level Up is located on the Upper Level in the Science Hall.

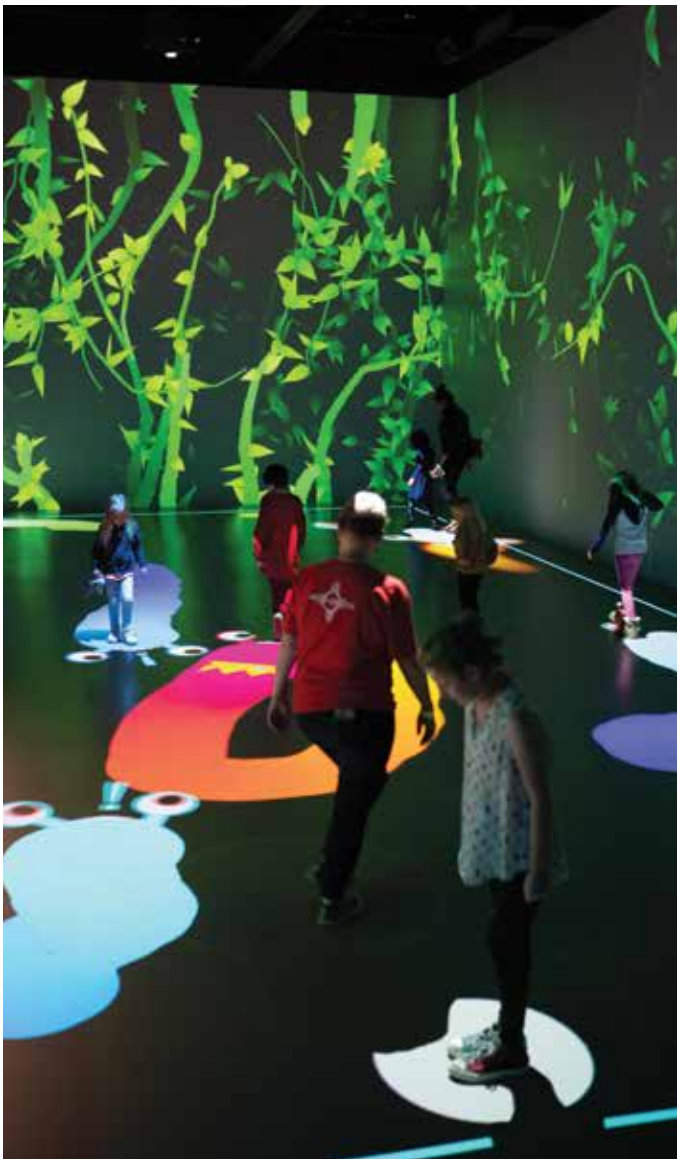
PRESENTED BY

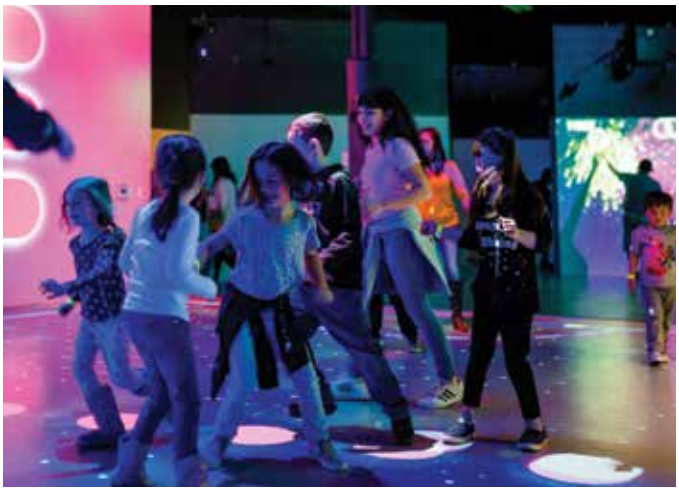
Electric Playhouse Travels

On Exhibit October 19, 2022 - January 3, 2023

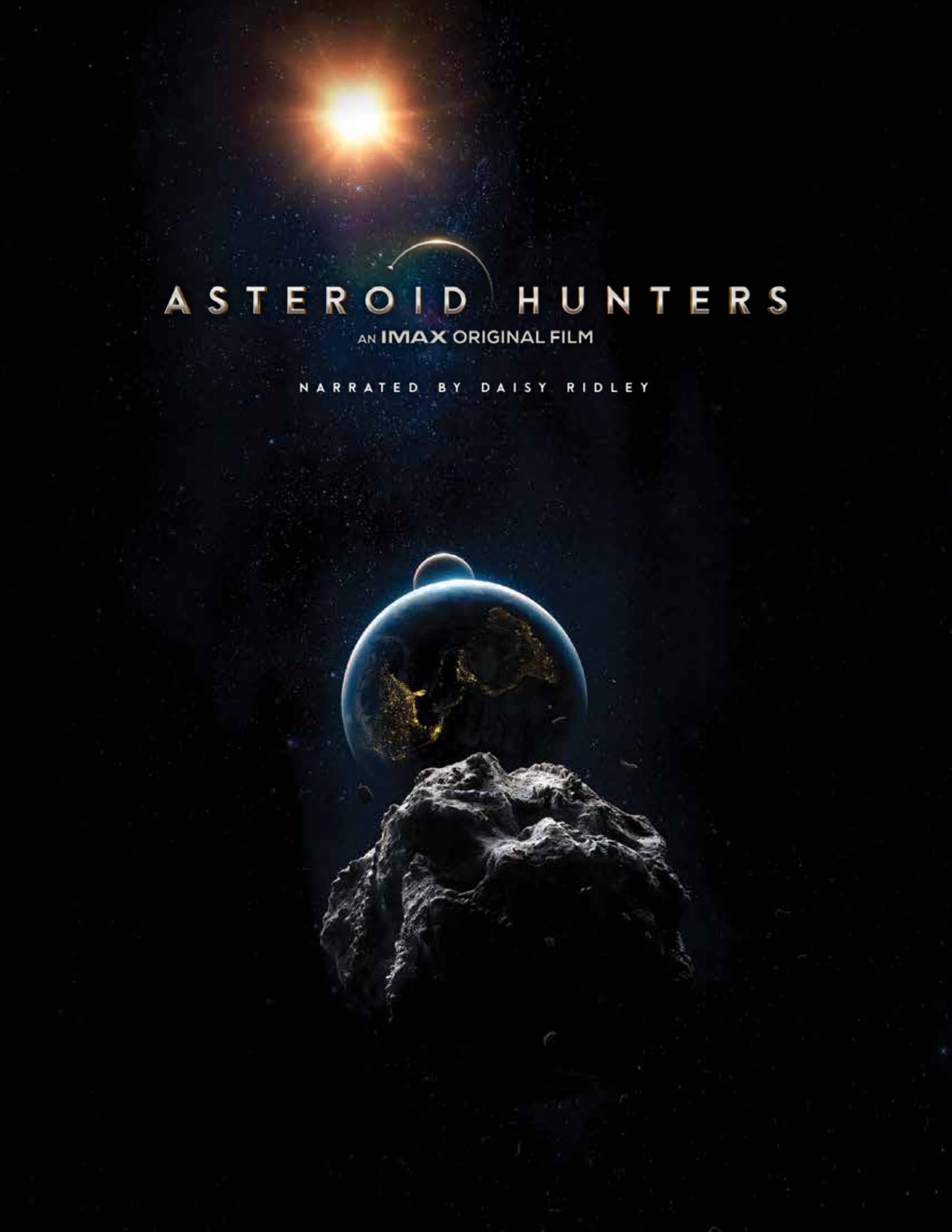
Electric Playhouse Travels - a digital, hands-free experience - is a mix of games, artistic interactives, and experiences that are ready for exploration. Using projection mapping and sensors, movements are tracked for the interactions without the need for headsets or other wearable devices. Visitors enter an exhibition of interactive experiences designed to promote healthy, active play that surprises, delights, and inspires movement all themed to feel like visitors are fully immersed in a digital universe. Visitors are invited to interact with the space-themed landscape of puzzles, challenges, and wonder.

ELECTRIC PLAYHOUSE TRAVELS





Electric Playhouse Travels was designed & developed by Exhibits Development Group and Electric Playhouse.


ASTEROID HUNTERS
AN IMAX ORIGINAL FILM
NARRATED BY DAISY RIDLEY

IMAX® Dome Theatre Shows

Asteroid Hunters

Grades 3-12 • October 2022 - January 2023

Narrated by Daisy Ridley, “Asteroid Hunters” introduces asteroid scientists – the best line of defense between Earth and an asteroid’s destructive path – and reveals the cutting-edge tools and techniques they use to detect and track asteroids and the technology that may one day protect our planet.

Dream Big

Grades K-12 • February 2023 - June 2023

From the Great Wall of China and the world’s tallest buildings, to underwater robots, solar cars and smart, sustainable cities, “Dream Big” celebrates the human ingenuity behind engineering marvels big and small, and reveals the heart that drives engineers to create better lives for people around the world.

Mysteries of the Unseen World

Grades 3-12 • October 2022 - January 2023

“Mysteries of the Unseen World” takes audiences on an extraordinary journey into unseen worlds and hidden dimensions beyond our normal vision to uncover the mysteries of things too fast, too slow, too small, or simply invisible.

The Great Space Chase Laser Show

Grades 3-12 • October 2022 - June 2023

Join Lt. Photeus as he tracks the sinister Captain Xenon through our solar system. “The Great Space Chase” is a detective mystery, which teaches audiences about our solar system and the universe beyond. This astronomy program is a lighthearted look at the universe around us and features space-related music by popular artists.

Planetarium Shows

One World, One Sky

Grades Pre K-K • October 2022 - June 2023

Join Big Bird and Elmo and their new friend Hu Hu Zhu as they explore the night sky and journey to the Moon and back!

Global Soundscapes

Grades 4-8 • October 2022 - June 2023

What do sounds tell us about the health of our planet? Join us on an ear-opening journey into the science of sound and the emerging field of soundscape ecology.

Toyota 4D Engineering Theater Films

Volcanoes: The Fires of Creation

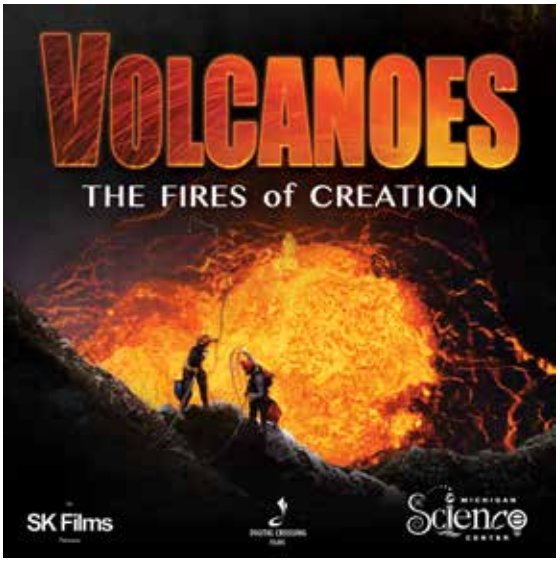
Grades 3-8 • October 2022 - January 2023

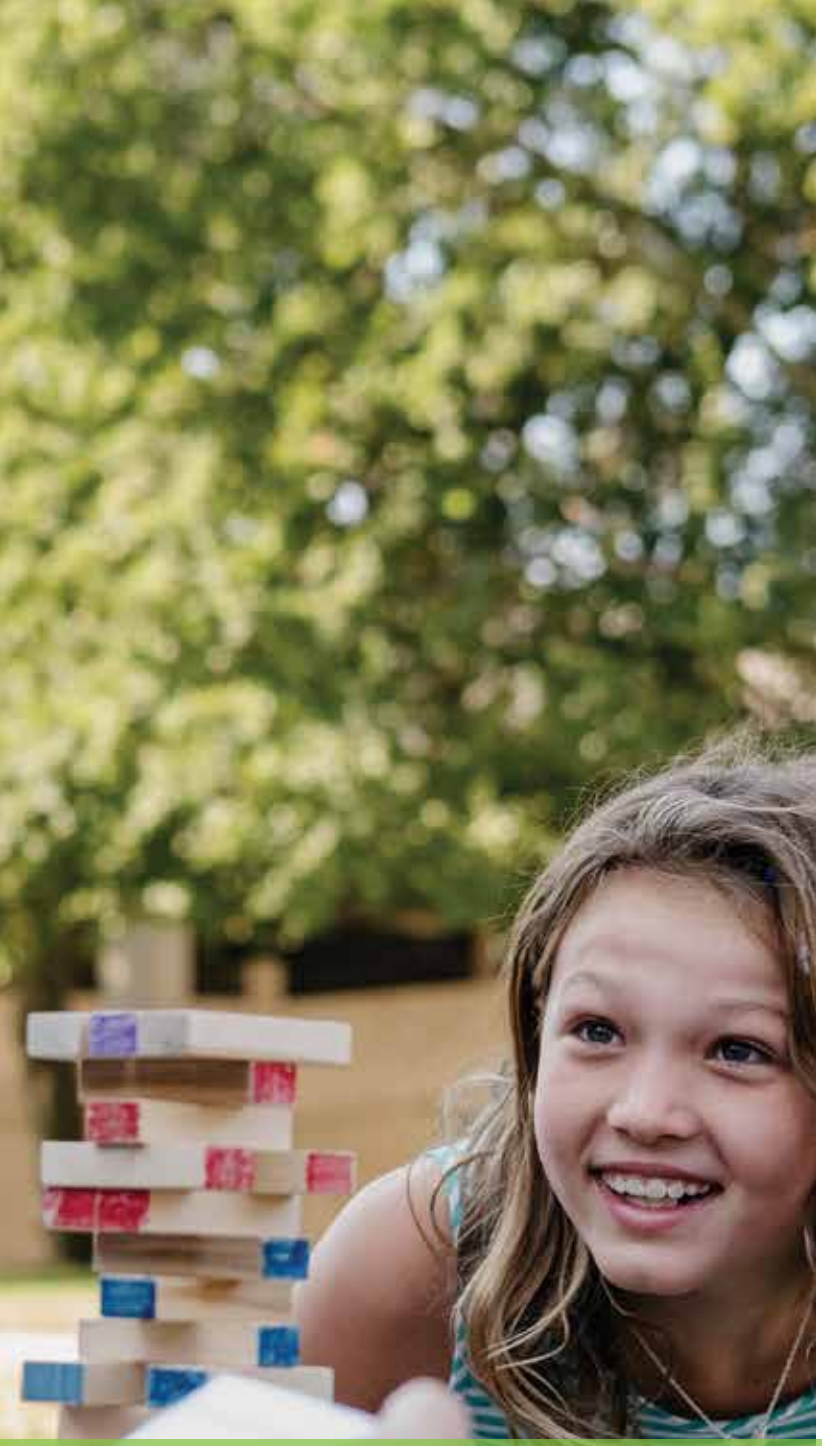
Earth is a planet born of fire. For billions of years, volcanoes have helped forge the world we know. From the continents to the air we breathe and even life itself, all have been shaped by volcanic activity.

Turtle Odyssey

Grades K-8 • February 2023 - January 2024

Explore the unique lifecycle of an Australian green sea turtle named Bunji and her incredible journey across the open ocean.





Offsite

Traveling Science

Our Aramco Traveling Science Program will put YOU at the center of science through engaging science workshops, group presentations, and interactive experiences that inspire learners of all ages. Since opening in 2012, we have served more than 500,000 people in 57 counties throughout Michigan.

The Aramco Traveling Science Program serves schools, libraries, summer child care groups, after-school programs, and other community groups and events. We offer a variety of experiences that can be tailored to different age groups and themes. Science Festivals and Family Science Nights, group presentations (assemblies), and interactive classroom workshops, are just a few ways our team can bring the wonder of Mi-Sci to you!

Traveling Science is brought to you by

aramco

Science Festivals

Let students be the scientists as they explore 10 hands-on activity stations in a single event. Host a Science Festival during the day for the entire school or an evening event for the whole family!

We provide:
- 10 hands-on activity stations with supplies
- Standard support for NGSS
- In-school marketing materials and support
- Trained educator to provide support throughout event
- 45-minute training for volunteers

You provide:
- A large, indoor space
- 11 tables and chairs
- 10-12 volunteers to actively facilitate activities

SCIENCEPALOOZA

Grades K-8

Inspire students and adults to "See Yourself in STEM." This kit of hands-on stations will introduce students to cutting-edge science concepts and technology being used in conservation efforts around the planet to preserve a brighter future for all humankind. Each activity station relates to real-world STEM career professionals from diverse backgrounds.

APOLLO ADVENTURE

Grades K-8

Discover the cosmos through hands-on interactive stations related to earth and space sciences. Participants will use a variety of science and engineering practices to develop a deeper understanding and appreciation for space and space exploration.

Discovery Dome Portable Planetarium

The Discovery Dome is a portable, inflatable dome screen and planetarium which provides immersive earth and space science presentations.

This program requires*:
- A quiet, indoor room with clean, swept floor
- Minimum floor space: 25 feet by 25 feet
- Minimum ceiling height: 12 feet
- Two standard 120-volt electrical outlets
- Air-conditioning during summer months

What's Up? Your Guide to the Night Sky

Grades K-5

Learn about the motion of the Sun, Moon, and stars as we investigate the dark sky objects that can be seen from our very own backyard. Each show includes a tour of stars, constellations, and planets for the evening of your event.

Expedition Solar System

Grades 6-8

Join us on an immersive journey through the cosmos starting with Earth's place in the Milky Way Galaxy, then working our way to the outward bounds of the known universe. Students will learn how scientists measure the sizes and distances between space objects and the cutting-edge technology being used to plot an ever-growing map of space.

Worlds of Water

Grades 3-8 • June 2023 - September 2023

Are we alone in the universe? To answer that question, we explore the thing responsible for life as we know it: water! Start this journey in Earth's oceans before traversing the solar cosmos in search of water. We'll even travel to exoplanets and discuss their potential to support life.

**If Discovery Dome requirements are not met, program will be cancelled without refund.*

Group Presentations

KABOOMISTRY

Grades 3-12

Our most popular program! Why do things explode? Learn about the relationships between pressure, temperature, and fuel to explain why things go KABOOM! We'll mix physics and chemistry to get some loud, flashy effects!

EUREKA!

Grades K-8

Imagine where we would be without inventions such as the light bulb, microwave oven, or even our favorite toys. Join us as we explore the unexpected and amazing tales of how these every-day modern marvels came to exist.

FROSTOLOGY

Grades K-12

Investigate how temperature relates to the movement of atoms and molecules in this exciting presentation. Utilizing liquid nitrogen (LN2), we'll see some 'cool' effects on solids, liquids and gases! (Available seasonally, November-March)

Hands-On Workshops

All hands-on workshops are 40-minutes in length unless otherwise noted and designed for up to 30 students.

Magnets

Grades Pre K-2

Discover the force of magnetism as we push and pull using magnets of all shapes and sizes. Students will make objects defy gravity, see a magnet made by using electricity, and create their very own art project using magnets!

States of Matter

Grades K-6

Learn how to define the states of matter and experience substances changing from one state to another. Some substances blur the line between liquid and solid. We'll get our hands into some slimy stuff to decide which state of matter it is.

Egg-pollo 11

Grades 3-8

Put your engineering skills to the test as you design a carrier to safely land an egg on the moon! Learners will boldly go through the engineering design process to create a model simulation of the Apollo 11 Moon Landing.

Current Events

Grades 3-8

What is electricity and how does it flow? Observe the power of electricity and learn about its simplest form. Students will then build simple circuits using household produce!

Oceans Alive

Grades 3-5

Dive head first into the watery depths as we explore the layers that make up our oceans! Students will discover the difference between ocean layers and what animal adaptations allow aquatic life to call them home.

Wind Turbines

Grades 3-8

Participants will be challenged to maximize the amount of electricity generated by a wind turbine of their own creation by changing the shape of its blades. Work as a team and use problem-solving skills to help increase the turbine's performance.

Owl Pellet Dissection

Grades 1-3

Dissect owl pellets and reconstruct the skeletons of animals inside to discover what the owls have been eating and learn about food webs and ecosystems.

Sheep Eye Dissection

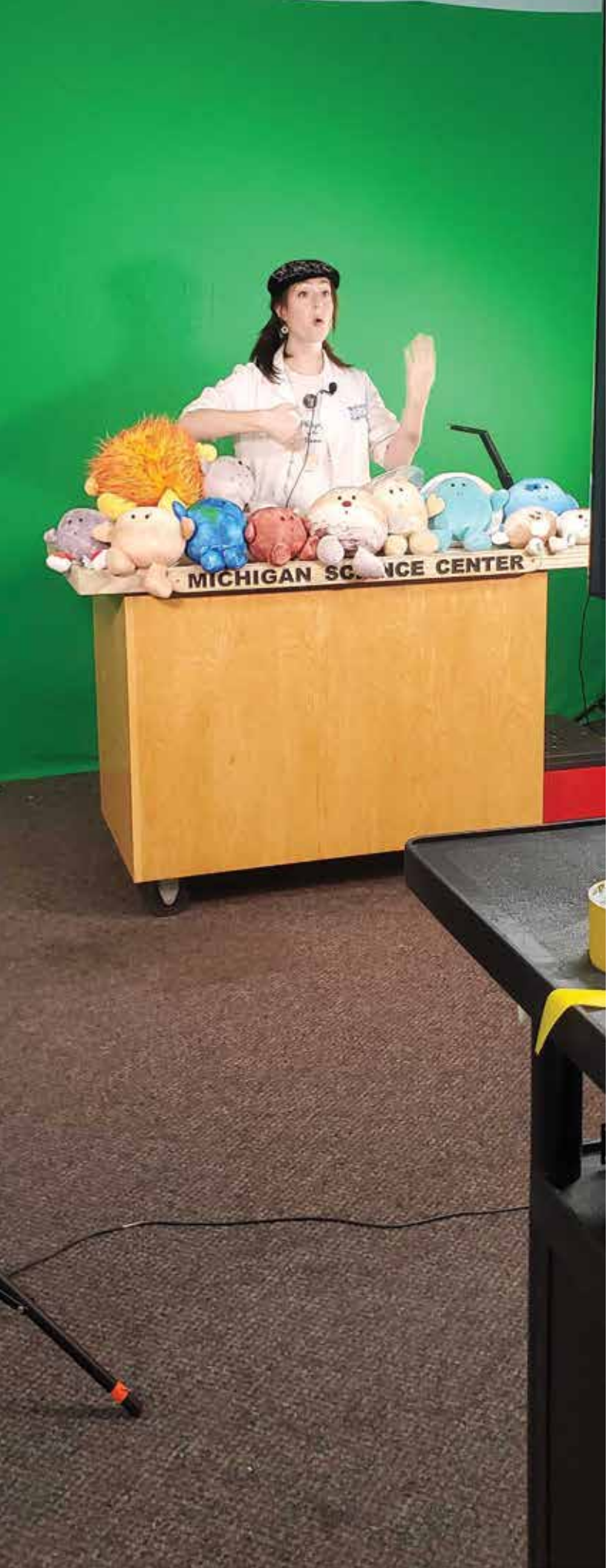
Grades 4-8

Students will work in pairs to perform a sheep eye dissection while under the direction of a trained Mi-Sci staff member. We'll compare the sheep eye to human eyes as we take a closer look at its features and functions.

Diving Into DNA

Grades 9-12

Participants will be able to describe what DNA is, where it's found, and how it codes for traits. Everything living has DNA, and students will be able to extract this genetic material from a variety of fruit.



ECHO Distance Learning

Visit the Michigan Science Center and join us for a great learning experience without leaving your home or classroom! Our ECHO program brings live science demonstrations and activities directly to your students over the Internet. Whether your class is learning in person or virtually, ECHO has a program suited for you.

Virtual Visits

Virtual visits include a 45-minute interactive program taught via Zoom and a complimentary tech-check prior to the program. Some Virtual Visits include hands-on materials for up to 30 students shipped to your classroom (remote classes will be provided with a materials list to gather prior to session).

FROSTOLOGY

45 Minute Workshop with Supply Kit • Grades K-5

Jump knee-deep into our wintry virtual visit! Make fluffy snow and sparkling white slime. Learn the science behind all things frosty. This program runs seasonally – November – March.

KNOW WHERE IT GROWS

45-Minute Workshop with Supply Kit • Grades 2-4

Environmental conditions, such as weather, affect where and when plants grow. We'll design solutions to reduce the impacts of weather-related hazards on plants in a community garden.

BURN BOSS TRAINING

45-Minute Workshop with Supply Kit • Grades 3-5

Engineers use controlled fires to restore habitats for plants and animals. Work together to learn more about the habitats of endangered plants and animals in areas that need fires to thrive.

RAD REACTIONS

45-Minute Workshop • Grades 5-8

Explore the science of chemical and physical reactions using simple materials you can find at home or the grocery store. We'll make lava lamps, colorful explosions, and discuss what happens when water and oil are forced to mix together.

VISIBLE LIGHT

45-Minute Workshop • Grades 4-8

Identify frequencies of light both inside and outside the range of human vision. Explore how different animals perceive color, then learn the story behind one of the world's most famous inventions – the light bulb!

GLOBAL SOUNDSCAPES

45-Minute Presentation • Grades 4-8

What do vibrations look like in super slow motion? What do sounds tell us about the health of our planet? Join us on an ear-opening journey into the science of sound and the emerging field of soundscape ecology. Developed by the Purdue Center of Global Soundscapes.

KABOOMISTRY!

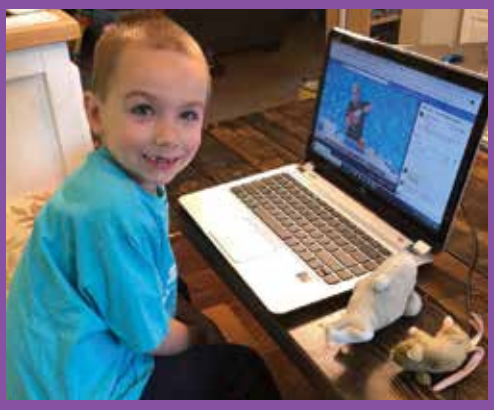
45-Minute Presentation • Grades 3-12

Our most popular program. Why do things explode? Learn about the relationships between pressure, temperature, and fuel to explain why things go KABOOM! We'll mix physics and chemistry to get some loud, flashy effects.

ECHO Live!

Check out what Mi-Sci's ECHO Distance Learning program can do by tuning into our free science webinar series, *ECHO Live!* Our Educators will show off some of our biggest and most exciting large-scale science demos that you can enjoy from school or at home.

Programs are broadcast live on the Michigan Science Center Facebook page and YouTube channel. No registration is required. Follow us for announcements and notifications about new episodes.



Other Opportunities

The LEGO Group

Children learn best through play. It's an essential part of child development. But not every child gets the time and chance to play that they deserve. Watch children play and you'll see them experiment, imagine, work together, and overcome emotional ups and downs. They're stretching their minds as well as their muscles. They're learning. And they're picking up the skills to thrive today and flourish tomorrow – whatever tomorrow looks like.

That's where we come in. With support from The LEGO Group, The Michigan Science Center is excited to be joining a network of organizations, professionals, and caregivers that are making learning through play a priority for every child around the world.

Learn more about Learning Through Play at:
https://learningthroughplay.com/

The STEMinista Project®

The STEMinista Project is an initiative started by the Michigan Science Center to connect girls to role models who help them see themselves in STEM. By creating opportunities to practice basic inquiry, analysis, and problem-solving through fun and interactive learning activities along with mentorship, Mi-Sci's STEMinista Project seeks to place HER at the center of science by empowering girls to lead the next generation of STEM innovators.

Girls in 4th-8th grade are encouraged to join the STEMinista Project by following the project on social media or visiting our website where you can browse our database of STEMinista Role Models (women in STEM careers from around the world). Are you a STEMinista Role Model and willing to share your story with girls? Consider completing an application to be featured in our database.

Applications to join the STEMinista Statewide Cohort can be found on our website.

Learn more about The STEMinista Project at:
https://mi-sci.org/steminista-project/

Educator Newsletter

Interested in keeping up with everything at the Michigan Science Center?

Sign up for our Educator Newsletter at:

Booking Information

Our programs are a great way to put your students at the center of science, and Mi-Sci has the experience and content to help you spark a lifelong love of learning. Whether you are looking to come in person, or visit us virtually, we have a package that will fit the needs of your students and meets them where they are academically. Not sure where to start? Our booking team is here to help you find the right fit for your class. We offer a variety of programs and experiences designed to satisfy curriculum requirements in exciting ways.

2022 - 2023 PRICING

Field Trip Pricing..... $11/person	Theater Shows..... $3/person
Group Presentations .....Starting at $375	Science Festivals.....Starting at $550
Discovery Dome .....Starting at $300	Hands-on Workshop .....Starting at $300 (2 Workshops)
Virtual Visits ..... Starting at $150	ECHO Live!.....FREE

Visit Us

Everyone remembers their first visit to the Michigan Science Center, and we are here to help your students build core memories that will stay with them into their futures. To schedule your visit:

- 313-577-8400 ext. 420
- reservations@mi-sci.org

Field trips are priced at a per-person rate with a minimum of 20 people in the reservation. We require that for every 10 students, there is one adult chaperone. That chaperone is given complimentary General Admission. If the reservation equals 20 with chaperones, all will be charged the $11 per-person rate.

Bring Mi-Sci to You

To book a Traveling Science program, visit www.mi-sci.org/traveling-science and submit an inquiry form or send an email to outreach@mi-sci.org.

Connect with Us Online

To book a Virtual Visit for your group, visit www.mi-sci.org/echo and submit an inquiry form or send an email to echo@mi-sci.org.

Deposit

- Deposits are required to secure your booking. When booking more than three weeks in advance, the deposit is $50 for field trips and 50% for outreach programs. When booking within three weeks of the visit or program, the full balance is required.
- When making an inquiry, you are not considered booked until the deposit has been received.
- Currently, we accept deposits as credit card payments or by check. If sending a check in the mail, a scanned copy of the check is required to secure your date.

Headcount & Final Payment

- Headcount and payment of the reservation balance are required three weeks prior to your visit.
- Final balance may be paid by credit card or by check. If paying with a check by mail, a scanned copy of the check must be submitted by the three-week deadline to reservations@mi-sci.org. Please do not send checks with the chaperones or teacher on the day of your visit or give checks to Mi-Sci educators at your school.
- If the balance is not settled within one week of your visit, your reservation will be canceled and all deposits will be forfeited.

Additional Guests

- Additional guests beyond those included in the initial reservation are eligible for the group rate when entering the museum with the group.
- Guests entering independently of the group are required to pay the standard general admission rate.
- Standard general admission is $18 per adult, $14 for seniors and youths ages 2-15.

Mi-Sci special offers, discounts, and free admission days are not applicable to group reservations. Should a group choose to attend on a day that we are offering free public admission, they are still required to pay the group rate.

Refund & Cancellation Policy

- Any cancellations will result in a forfeiture of the deposit.
- Visits may be rescheduled prior to the originally scheduled date with a $25 rebooking fee. No additional deposit is required.
- No-shows will result in a forfeiture of all deposits and payments.
- We are unable to issue refunds when headcounts are less than the reservation indicates.
- Cancellations or rebooking due to COVID-19 are not subject to previously outlined fees.

Other Field Trip Logistical Information

- **Arrival:** When your group arrives at the Michigan Science Center, a representative from our Guest Relations team will welcome your students and review our guidelines for a safe and fun visit.
- **Lunch:** You are welcome to enjoy lunch on-site during your visit. We do not have a cafeteria. We do have a Farmer's Fridge vending machine with refrigerated salads, sandwiches, and snacks on a limited basis. Lunch seating is on a first-come, first-served basis. You may bring your own lunches.
- **Buses and Parking:** Mi-Sci does not guarantee on-site parking. There is bus loading and unloading in the circle drive located directly in front of the museum entrance on John R St. Please drop off and pick up students at this entrance. Parking may be available in metered spots around Mi-Sci. Please abide by all parking signage. Bus drivers staying with the group are admitted for free.
- **Programming:** Mi-Sci is a self-guided experience. Students are required to remain with chaperones at all times. Science Stage shows take place multiple times a day and are included in the admission fee. Theater shows are available at the group rate of $3 per person. Private showings of specific films can be arranged prior to your visit when groups are larger than 100 persons.

MICHIGAN Science CENTER

POSTAGE

5020 John R St
Detroit, MI 48202

Teacher Name
School Name
5020 John R St
Detroit, MI 48202

WE PUT *YOU* AT THE CENTER OF SCIENCE!