

newscience

NEWS FOR MEMBERS AND FRIENDS OF THE SAINT LOUIS SCIENCE CENTER

SPRING 2022



CURIOSITY CONNECTS

US ALL

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Connect with curiosity.

Dear Friends of the Saint Louis Science Center,

With each new year, we wonder at the potential discoveries, advancements and breakthroughs we'll see in science and technology and the ways they will impact each of us.

While the COVID-19 pandemic continues to disrupt our world and our daily lives, STEAM—science, technology, engineering, art and math—also continues to show its importance and its promise. We see it in the effectiveness of vaccines, potentially lifesaving new medicines and treatments and the heroic, resilient work of healthcare workers around the world. We also see it in the newly launched James Webb Space Telescope continuing our never-ending search for answers about our universe. And right here in our own backyard companies across the spectrum of science and technology—from aerospace and engineering to financial technology, pharmaceuticals, manufacturing and more—are demonstrating that St. Louis is a home for STEAM.

In fact, with recent reports like the STL 2030 Jobs Plan showing that our region's future shines bright with possibility when it comes to science and technology, it's more important than ever that we serve our community as a place to connect with curiosity. Thank you, as always, to our philanthropic partners, members and community. Every lightbulb moment our mission sparks is because of supporters like you.

In this issue of *NewScience* you'll read about just some of the fun and exciting ways we're continuing to bring STEAM to the St. Louis region, from our newest special exhibition, *HOCKEY: Faster Than Ever*, where guests will discover more about the science and history inside this exciting sport, to the ancient treasures in our latest Planetarium tunnel exhibit, *Inside the Vault*—the largest display of the Science Center's Collections items in 30 years.

Read about what's new in the GROW Gallery's Root Towers exhibit, our Esports Program, First Fridays and more. I'm thrilled to see our community finding STEAM in such unique and surprising ways.

Learn how a partnership between the Science Center and the Sheldon Concert Hall is bringing the science of sound to local schools, and meet some of our senior-year YES Teens as they prepare to graduate from the program and step into the opportunities of STEAM. Our YES Teens achieve great things, and I cannot wait to see what they accomplish in the future.

Look close enough and you find that STEAM is everywhere. There's always something new to discover, and truly, curiosity can connect us all.



Sincerely,

Todd

Todd Bastean
President and CEO

To ignite and sustain lifelong science and technology learning. Mission of the Saint Louis Science Center

Connect with us for updates, special events and fun science.



Hours

Thursday–Saturday 9:30am–4:30pm
Sunday 11:00am–4:30pm
Closed Tuesdays & Wednesdays
Holiday Hours: See Calendar Insert

Contact

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St. Louis, Missouri 63110

Membership

Services & Sales: 314.289.4491
slsc.org/membership
memberships@slsc.org
Member Reservations: 314.289.4424

Reservations

Advance Sales & Group Reservations:
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Education

Field trip information:
slsc.org/field-trips
Educator Resources:
slsc.org/educator-resources
Programming information:
education@slsc.org

Events

Host your next private event at the Saint Louis Science Center. Services and catering provided by Saint Louis Science Center Events. For information: 314.533.8179

Accessibility

Complimentary wheelchairs and strollers available in the lobby. Motorized scooters are available for a rental fee. Personal Hearing Assistance Devices available at the OMNIMAX® Theater and Planetarium. Captiview captions devices available for all OMNIMAX films.

Official Partners

The Saint Louis Science Center gratefully acknowledges the support of our Official Partners.



In This Issue...



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See a recap of our Holiday Member Appreciation Night, learn more about our latest membership benefit, the Member Access Portal, and find out what exciting member events are coming soon!

6 Science Today

More and more, drone technology is being utilized in our world. In Science Today, explore this increasingly ubiquitous technology with Dr. Srikanth Gururajan, associate professor of aerospace engineering at Saint Louis University, and discover how drones are shaping up to be the workhorses of the future.

8 Gallery Spotlight

Things are taking root in the GROW Gallery. See what our Root Towers exhibit has in store for guests this spring as this exhibit gets ready for its second year.

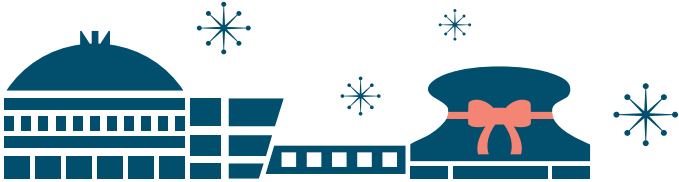
20 Community

From this year's Youth Exploring Science (YES) Program graduates to a SOLID collaboration with the Sheldon Concert Hall, see how the Science Center is impacting STEAM education in St. Louis. Plus, see updates from our Esports Program and more.

28 Partnership & Support

Read about the American Farm Bureau Federation's recent visit to the GROW Gallery as well as some of the recent grants supporting the Science Center's Youth Exploring Science Program.

Engage with *NewScience* in a more interactive way. If you see this icon, head to slsc.org/newscience for extended digital content.



CELEBRATING OUR MEMBERS AT
**Holiday Member
Appreciation Night**

This winter we were honored and excited to welcome back members for our annual Holiday Member Appreciation Night.

Members were excited to participate in a wide range of activities, including seeing *Seasons Greetings* in the McDonnell Planetarium and *Dinosaurs of Antarctica* in the OMNIMAX® Theater, as well as special activities in GROW, and our *Tyrannosaurs: Meet the Family* special exhibition. Take-home items included a holiday jingle bell from the Discovery Room, as well as a laser-engraved ornament from Makerspace.

“Thank you to all of our members for another successful Holiday Member Night!” said Vickie Corkhill, director of membership. “We appreciate your support and look forward to seeing you again soon!”



**Upcoming
Member Events**



MARCH 10
MEMBER PREVIEW: IRELAND

Join us for a special preview of our newest OMNIMAX® Theater film, *Ireland*, narrated by Liam Neeson. Experience the vibrant beauty and fascinating history and culture of Ireland as shown through the travels of author Manchán Magan and four teenage musicians around the Emerald Isle. Screenings available at 5:30pm and 7:00pm.

MARCH 31 | 5:00PM-8:00PM
**MEMBER PREVIEW: HOCKEY: FASTER THAN
EVER SPECIAL EXHIBITION**

Experience the thrilling history, culture and science of hockey with more than 20 hands-on interactives including the “Hockey Science Lab” in our new special exhibition, *HOCKEY: Faster Than Ever*. Test your hockey knowledge with a scaled-down replica rink and experiment with speed, balance, reaction time and other skills important to the game of hockey. Members see it first during this special event. Tickets on sale March 3.

APRIL 28 | 6:00PM-8:00PM
**MEMBER MISSION: STORM & WEATHER
AT ENERGY STAGE**

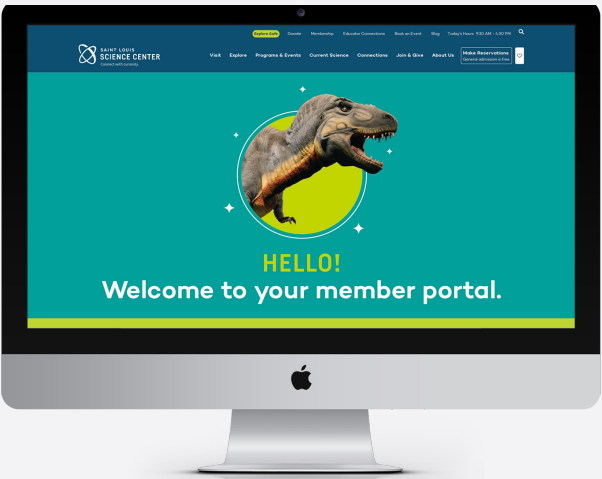
Save the date! More information coming soon.

MAY 19 | 6:00PM-8:00PM
MEMBER EVENT: INSIDE THE VAULT

Inside the Vault brings the hidden treasures of the Saint Louis Science Center’s Collections to you. This is the largest display of Collections objects in the Science Center’s 30-year history. Manager of Collections Kristina Hampton will provide a member-exclusive, behind-the-scenes tour of this exhibition, offering insights and stories about select artifacts and specimens. Refreshments will be served.

MEET THE
**Member Access
Portal**

Launching Late Spring 2022



**Meet your latest Science Center
membership benefit, the Member
Access Portal!**

The Member Access Portal is an exclusive website where members can view unique science content, members-only exclusives, upcoming events and sales and so much more. You can satisfy your curiosity 24/7!

Watch your email in the coming weeks for instructions on how to register your account using your Saint Louis Science Center member credentials.

Has your email changed? Contact us at memberships@slsc.org.

DRONES: Workhorses of the Future

SharpShooter UAS platform
Image credit: Siddharth Shekar



**DR. SRIKANTH
GURURAJAN**

Dr. Srikanth Gururajan is an Associate Professor of Aerospace Engineering at Saint Louis University. He leads the Aircraft Computational and Resource Aware Fault Tolerance (AirCRAFT) Lab where his team of graduate and undergraduate students work on novel drone designs, fabricating, testing and using artificial intelligence & machine learning to teach and train them to behave well and be good drones, all in the service of humanity. He lives in St. Louis County with his family and pup, Biscuit.

It's the morning of your birthday, and a message on your phone alerts you to a delivery on your porch. You open the door expecting to see your friendly delivery driver, but instead you hear the hum of a delivery drone hovering above your front yard, gently winching down a box with your gift!

This perhaps might have been fiction just a few years back, but given the pace of innovations in the drone or Unmanned Aerial System (UAS) field, an elementary school student today could realistically expect this to be a norm by the time they enter college. It's just one of many scenarios where drones are expected to be used extensively soon.

Researchers all over the world are developing, testing and validating the underlying technology to enable safe, widespread use of these UAS for many tasks, from monitoring crops, wildfires and floods to assisting with search and rescue.

At Saint Louis University's Aircraft Computational and Resource Aware Fault Tolerance (AirCRAFT) Lab, a team of researchers is expanding the envelope of drone applications and safety through several novel projects. At the AirCRAFT Lab—whose motto is “*The Future is Autonomous*”—the team is working to bring that future closer by developing technology to train, teach and enable drones to be the workhorses of the future. Imagine an autonomous drone capable of responding to your commands or gestures to pick up your groceries, or watch over your yard (or your pup—“Biscuit, leave it!”), check on your prized pear tree or survey your roof after a storm... The AirCRAFT Lab is working to make these potential scenarios a reality.

In one of the lab's projects, a Virtual Reality (VR) environment is being developed to enable a user to command and control drones from remote locations. Currently, UAS operation is limited to those highly skilled in manipulating flight controls, developed over many flight hours. The AirCRAFT Lab's work integrating virtual reality controls would allow an entry-level user to easily operate a UAS—much like playing a video game.

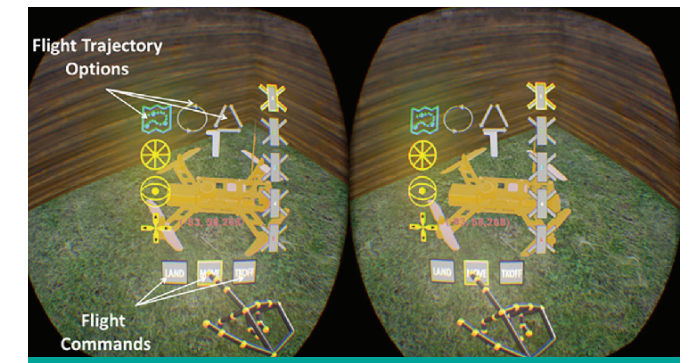
One potential application of this project is enabling collaborative search and rescue operations in the event of a disaster. But alongside emergency and high-consequence applications are also day-to-day conveniences. For instance, imagine checking on your aging parents and their home in a distant state from your own home. The VR interface could even allow a user to create a flight path through a dense environment to task a drone or a drone swarm to perform a task, command the drones to change shape as they navigate through tight spaces or exchange control of these drones between different users. This research involves undergraduate and graduate students from various disciplines, including aerospace engineering and computer science, highlighting the collaborative nature of this technology and necessity for experts from numerous areas' involvement.

While a multirotor (a quadcopter being the most common) is what comes to mind to many when “drones” are discussed, the term UAS covers fixed-wing uncrewed aircraft as well—similar to aircraft models that many people grew up flying in RC flight fields. In the future, it is reasonable to expect that larger fixed-wing UAS will be used in long-distance transport, or long endurance monitoring flights, when approved by the Federal Aviation Administration (FAA).

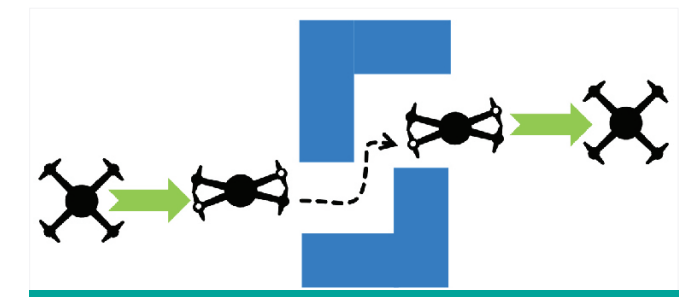
Within the AirCRAFT Lab, technologies are being developed using Artificial Intelligence and Machine Learning (AI/ML) to detect damage, like from hail, on the wings of these fixed-wing UAS and enable the aircraft to continue flying. Researchers (particularly graduate students looking to de-stress) recreate these damaged conditions by launching ice pellets from a compressed air cannon at prototype wings made from insulation foam and composite materials like fiberglass. These damaged wings are then tested in the Saint Louis University wind tunnels to calculate any resulting changes in lift and drag on the wing. This way, AI/ML is being taught to first recognize this damage and then alter the flight profile of the aircraft to keep it aloft (and the individuals on the ground below safe).

At the same time, widespread drone use brings the problem of drones flying in unauthorized spaces or even losing control—both these scenarios result in unsafe or dangerous conditions in the airspace. In response, AirCRAFT Lab researchers are developing advanced technologies based on AI/ML to identify the drones from an existing system of live video feeds, like one might find in traffic cameras. As this technology matures, it could be used to determine the future trajectory of a drone—information useful to a safety monitoring system that could then act on that information.

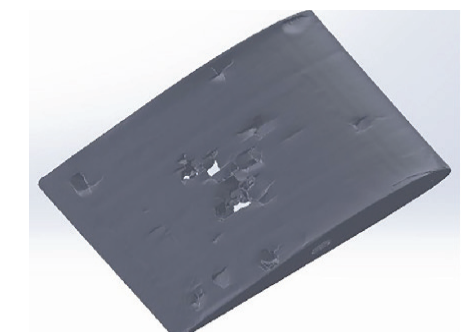
In the future, it is conceivable to see drone usage being ubiquitous in everyday life—smart drones equipped with high



Virtual Reality Drone Command/Control Environment



A morphing geometry quadcopter



A wing section with holes and damage due to ice pellet impact

levels of autonomy powered by AI/ML, capable of recognizing input, whether hand gestures or verbal commands, from a user with a basic skill level. Ahead, there is a world where farmers utilize a VR interface from their home office to command drones to survey their fields; where a first responder can deploy a drone to a disaster area using simple hand gestures and voice commands; or where instate commerce and delivery are executed by unmanned aircraft, aware of their environment and able to adapt in severe weather, to complete a mission.

The possibilities that these drones of the future bring are almost limitless, and at Saint Louis University's AirCRAFT Lab researchers are exploring them with a combination of cutting-edge drone technology and Artificial Intelligence, powered by the belief that “*The Future is Autonomous*.”



Learn more about AI in our recent member event at slsc.org/newsience.

TAKING ROOT

In July of 2021, the GROW Gallery's Root Towers exhibit opened to guests. The nine towers give guests a window into the world beneath their feet through nine different plants, including perennials (plants that come back year after year) and annuals (which need to be re-planted every growing season).



The GROW Gallery's Root Towers encourage guests to use their observation skills to ask questions and see what discoveries they can make. How do the perennial roots look compared to the annual roots? Do all roots look the same? Do some plants have thicker roots? What happens to the roots underground when it's cold? Guests are encouraged to open the doors to the towers to find answers and can make notations using stickers to show the root growth on the day they visited. Rulers along the sides also allow guests to see how they "measure up" to the plant roots. Repeat visits to the towers allow guests to see if or how the roots have changed.

"It's been fun watching grown-ups and kids make their own discoveries about the roots, the soil and the soil organisms living in the towers," says Maddie Earnest, manager of the GROW Gallery. "I really like how this exhibit encourages guests to go deeper into science topics, whether by reading the interior door content or taking a stroll through the towers to see the variety of plants for themselves."

This year, guests can expect to see familiar annual food crops like corn and Swiss chard as well as perennial plants like leadplant and alfalfa.

Earnest says that seeing corn has been especially fun for guests. "The corn plant has a massive and very fibrous root structure that's revealed when you open the doors to the towers. It's incredible to think how much root matter is under all those corn fields when each acre is planted with 22,000–35,000 plants." In the U.S. in 2020, farmers grew corn on 82.5 million acres of land. "That amount of land, corn, and roots is almost inconceivable to most of us," Earnest says. "One corn plant's fibrous root structure can stretch 400 miles if connected in one long piece. No wonder scientists are going deep into the study of root structure."

In fact, scientists right here in Missouri at both the Donald Danforth Plant Science Center and the University of Missouri are studying root architecture as well as interactions between the roots and the soil environments.

When guests visit the Root Towers, they'll also be able to learn about some of the scientists working with food crops, roots and soil/root interactions, topics that will be key in finding ways for humans to grow food crops that can thrive in our world's changing climate conditions.

With so much to learn about how soil organisms and soil structure interact with plants, it's a perfect time to come see what's taking root out in GROW.

FEATURED FOSSIL:

Juvenile Triceratops Frill



Did you know that at the Dana Brown Fossil Prep Lab, staff and volunteers work on preparing real dinosaur fossils? The fossils in the dig site are casts from real fossils that can be seen on display in the prep lab!

Here, see a juvenile triceratops frill (or head plate) fossil being pieced together. To increase the overall stability of the frill, the team is "pinning" larger pieces together as they work to reassemble the fossil.

Stop by the Dana Brown Fossil Prep Lab on your next visit to see more fossils like this one! [Learn more](https://slsc.org/fossil-lab) at slsc.org/fossil-lab.



DAILY AT 12:00PM | FREE

Dino Chat

Returns!

Learn all about the exciting world of dinosaurs at the Science Center with Dino Chat! Join us each day in front of the T-rex to meet one of our educators and hear about the fascinating prehistoric creatures who once roamed the Earth.



NEW! Planetarium Star Show: Stars Around the World | OPENING MARCH 10

See *Stars Around the World*, our latest live star show in the McDonnell Planetarium! In this all-new show, guests under the Planetarium dome will travel to different parts of the world and see the changes visible in the sky overhead.

"The exciting thing about this show," says Will Snyder, manager of the McDonnell Planetarium, "is that guests get to observe sights they wouldn't otherwise see from here in the Midwest." *Stars Around the World* explores constellations from the Southern Hemisphere, deep sky objects like the Magellanic Clouds not visible from St. Louis and even phenomena like the aurora borealis. "We also get to explore how different cultures may interpret the stars we see in St. Louis in a different way. *Stars Around the World* brings together science and culture as we take guests on an adventure around the globe." See showtimes or learn more at slsc.org/stars-around-the-world.



Read more about how the Planetarium team developed this new star show at slsc.org/newscience.



**McDonnell
Planetarium**

Astronomy Dates!

MARCH 20
Vernal Equinox

The vernal equinox marks the first day of spring in the northern hemisphere. On this day, the sun shines above the celestial equator providing equal amounts of light to both northern and southern hemispheres.

APRIL 22-23
Lyrid Meteor Shower Peak

The annual Lyrid meteor shower is caused by debris from comet C/1861 G1 Thatcher, which was discovered in 1861. Best viewing will occur after midnight on the morning of April 23.

MAY 6-7
Eta Aquarid Meteor Shower Peak

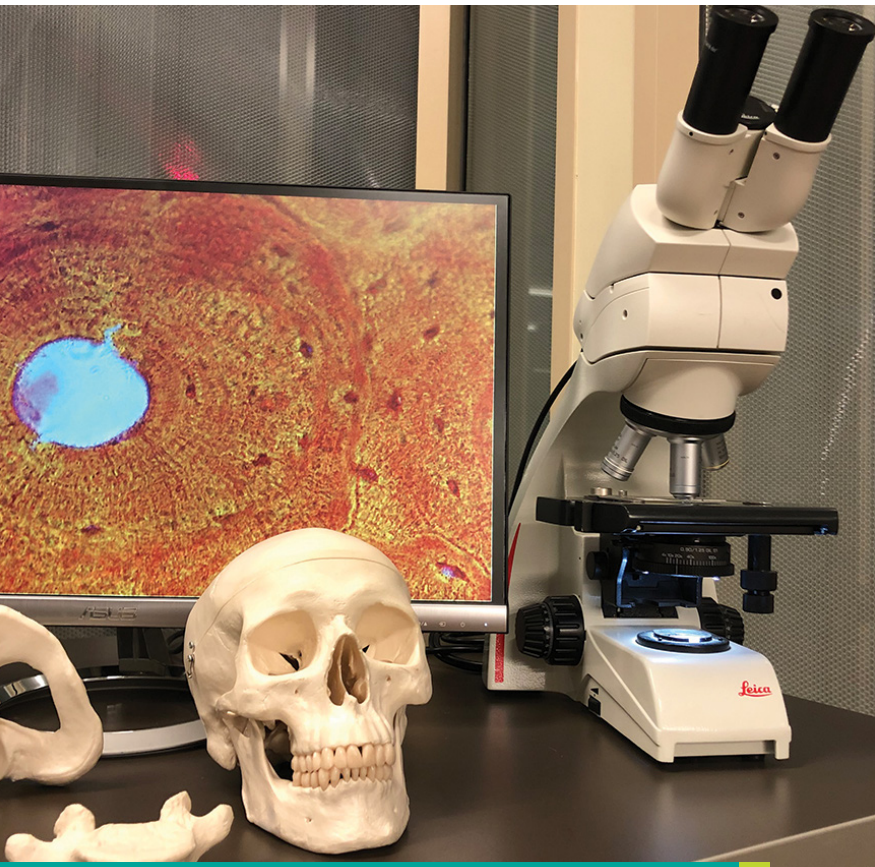
The annual Eta Aquarid meteor shower is caused by debris left behind by Halley's Comet as it orbits the sun. The waxing crescent moon will set early, leaving dark skies for spotting shooting stars.

MAY 15-16
Total Lunar Eclipse

The cosmic event of the spring! St. Louis will experience a total lunar eclipse on the evening of May 15. Often called a "blood moon," the moon will take on a reddish hue as it passes through the Earth's shadow.

See these shows at the McDonnell Planetarium this spring!

- *Stars Around the World*
- *Live Sky Tonight*
- *Gateway to the Solar System*
- *The Little Star That Could*



Exploration Labs Make Everyone a Scientist

Exploration Labs
SATURDAYS AND SUNDAYS | 1:30-3:30PM | FREE

Join us in the Life Science Lab for Exploration Labs, an immersive, hands-on experience diving into the diverse places where science happens. Use real research tools and techniques to explore a rotating selection of life science topics and discover how every place can be a science lab if you ask questions, make observations and draw conclusions. These drop-in style sessions are free and designed for guests of all ages.

Learn more about the Life Science Lab at slsc.org/life-science-lab.



Enhancing Science Learning One Book at a Time WITH SCIENCE STORY TIME

Children are naturally curious. They constantly want to learn about the world around them and how things work, and engaging with informational science-themed picture books can provide young children opportunities to explore and learn about their world in the safety and comfort of their own homes.

Picture books are especially interesting to young children, and the detailed images and informational text found in high-quality books can support science learning in several key ways.

Reading informational science-themed picture books also can help children acquire new knowledge and develop understanding of real world concepts. For example, reading high-quality science-themed picture books can help children develop their vocabulary by exposing them to specific terms they might not typically encounter in their daily lives. Informational picture books can also expose children to language and practices used by scientists, potentially encouraging children to engage in science practices themselves, like asking questions, observing, communicating, predicting and drawing conclusions.

Science-themed picture books enable children to connect science to their daily lives. When they read about and discuss science concepts, they connect science to their own experiences and interests. Engagement with science-related informational books can potentially foster a child's interest in and curiosity for science.

Caregivers can help promote science learning when reading with children by asking questions and encouraging discussion before, during and after reading. Retelling is a way to facilitate comprehension and help children make meaning of what they read, while repeated readings of a book enable children to develop a deeper understanding of concepts and can also lead to more complex discussions.

Join us at the Science Center's Energy Stage on Fridays, Saturdays and Sundays for Science Story Time, where our early childhood educators share a wonderful science-themed picture book perfect for young scientists and their grown-ups alike.

Science Story Time at the Energy Stage:
FRIDAYS AND SATURDAYS AT 10:15AM | SUNDAYS AT 11:30AM
(Recommended for children ages 3–6)
Learn more at slsc.org/programs/science-storytime.



Looking for a science story book for your little learner? Explore some science-themed picture book recommendations from our Early Childhood team at slsc.org/newscience.

MEET THE TEAM

Matt Gandolfo

SENIOR EDUCATOR FOR MAKERSPACE & GAMEXPLORATION

Guests to the Science Center might already know Matt Gandolfo, senior educator for Makerspace and GameXPloration. We spoke with Matt about some of the exciting things he does to connect guests with science and technology, as well as some of his experiences in his career at the Science Center.

Q: Matt, how long have you been at the Science Center?

A: I've been here for seven and a half years.

Q: Where can guests typically find you in the building?

A: Makerspace mostly, but I'm trained in all of the galleries and help wherever needed.

Q: What are some of the STEAM topics you're interested in?

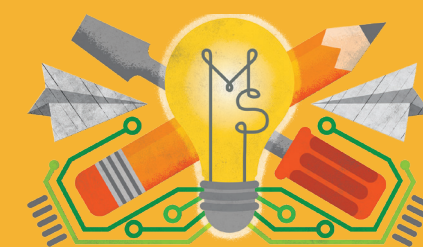
A: I'm really interested in engineering—specifically additive manufacturing or “3D printing.” But I'm also a huge fan of space and the vehicles that get us there, past, present and future!

Q: What are some recent examples of activities you've helped facilitate for members and guests?

A: We offered an activity late last year where we walked members through assembling an ornament made from laser-cut wood and an LED light. Then, we recently offered a workshop where guests could work with real carpentry tools to build a simple box. It was a hands-on offering geared towards our teenage guests and they really enjoyed it.

Q: Can you tell us a little about some of your favorite interactions with guests and members of the community?

A: I love that moment of seeing someone's eyes light up as I'm explaining something, that *Aha!* moment when something clicks and they understand it just a little bit more. But a very close second is the “Whoa! Cool!” that we often get with the things we create in Makerspace, and then being able to show someone how it's made and how it works.



“CRAZY CONTRAPTIONS” in Makerspace

Join us in Makerspace during March, April and May for “Crazy Contraptions.” In this Makerspace workshop, guests will use our Rigamajig and some special add-on kits to build crazy contraptions!

Crazy Contraptions will be offered daily in the Makerspace Classroom from **2:00pm–4:00pm**. Learn more about Makerspace at slsc.org/makerspace.



INSIDE THE VAULT

NEW PLANETARIUM TUNNEL EXHIBIT

Don't Miss These Hidden Treasures from Inside the Vault

Have you seen *Inside the Vault*? Come take a peek at treasures from inside the Science Center's Collections in the largest display of Collections items in the Saint Louis Science Center's 30-year history.

We spoke with Kristina Hampton, manager of collections and special projects, to find out which of these exciting artifacts you won't want to miss seeing in person.

Curious to see more? Come to *Inside the Vault*, a free exhibit located inside the Planetarium tunnel. Learn more at slsc.org/inside-the-vault.

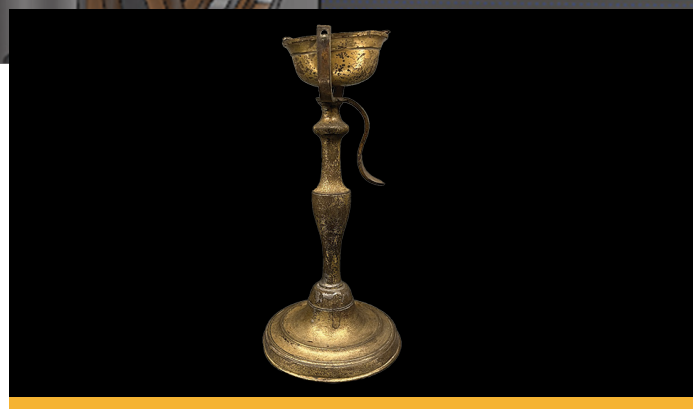


Mineral Collection: Jasper (Marble Ruin)

Collected: Florence, Italy | Formation: Metamorphic

In the mountain areas of Italy around the city of Florence, a rare kind of limestone is found called "Florentine marble." Discovered in the 16th century, the natural veins of impurities within the limestone have formed jasper and arranged themselves in shapes resembling mountainous landscapes, castles, and ruins. For this reason, the jasper is also known by various names such as "marble ruin" and "landscape marble."

"Because the patterns on the jasper are random," Hampton says, "the likelihood of discovering one where the formation looks like a ruined city is pure chance. The pattern is hidden inside the limestone rock that formed around it and cannot be seen until broken open. What is great about this particular specimen is that the formation looks a bit like the city of St. Louis, complete with the Arch!"

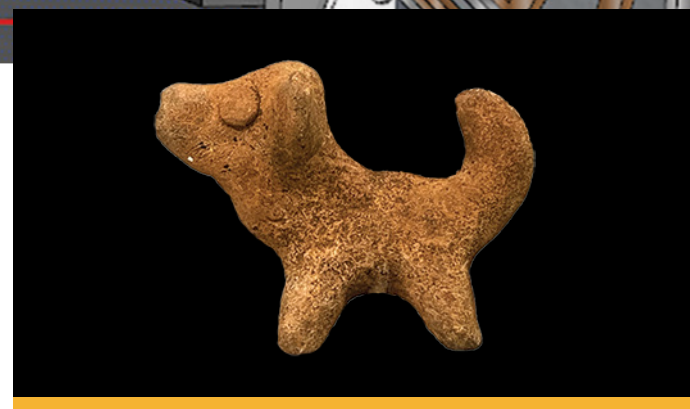


Lighting Collection: Ship Whale Oil Lamp

Double-channel pan, brass | American, ca. 1850 AD

Did you know that inside a ship, lamps were often mounted on gimbals so they could pivot and stay upright in rolling seas? This was important to keep lamp oils from spilling and to ensure the lamp stayed lit. The gimbal was designed so the wick always pointed upwards no matter how rough the ocean was. First invented in Greece around 200 BC, gimbals were applied for use with ship lanterns by the 1500s.

"Sailing was a dangerous occupation, and fire was the greatest danger of all for early wooden sailing ships," says Hampton. "However, lighting onboard with candles or oil lanterns was necessary. Development of gimbal lamps decreased the potential threat of fire from that source. The best lamps were made of copper and pewter, but many were made of brass like this one, tin, or tin-plated iron."

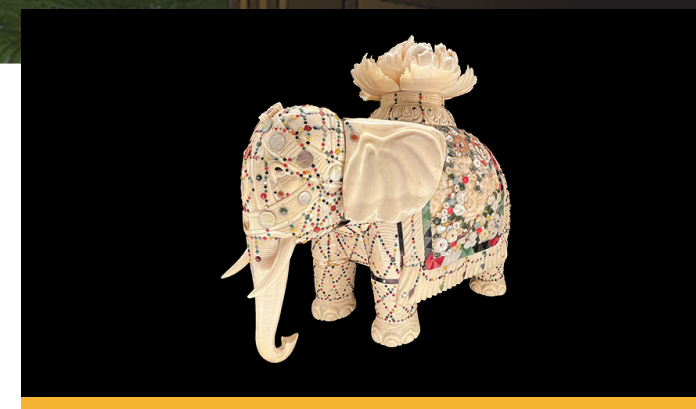


Davis Collection of Miniatures: Terracotta Dog Shaped Whistle

Colima culture, Colima, West Mexico | ca. 300 BC

In nearly every world culture, dogs were the first domesticated animals. For the past 3,000 years, the Colima Dog has been the animal most frequently portrayed in Western Mexican art. A relative of the Mexican Hairless dog, it was highly regarded among ancient cultures like the Colima as a guardian of the dead, healer of the sick, protector of the home, and as a food source for ceremonial feasts.

"The Colima made a distinct style of terracotta figurines that depicted daily life," Hampton notes, "and as an important animal, dogs were a common subject. A large portion of Colima tombs had actual dogs, dog-shaped vessels, or dog-shaped whistles like this one buried with the deceased."



Elephant Collection: Carving

Ivory, mother of pearl and gems inlay
Japan, Meiji Era, ca. 1868 – 1912 AD

In Buddhism the white elephant is revered as a divine omen and seen as an earthly manifestation of the qualities embodied in the Buddha. It is also closely tied to the story of the Buddha's birth. In a dream, the Buddha's mother Queen Maya saw a pure white elephant circle her three times while holding a white lotus flower in its trunk. The elephant blessed her womb from the right side, then disappeared. The queen knew she had been sent a divine omen that greatness would soon be born.

"This stunning elephant carving employs the art form known as Shibayama, the inlay of a design into an ivory base using carved natural materials of varying textures and colors," Hampton says. "On the elephant's back is a lotus flower, symbolizing the heart and mind's ultimate purity."

FIRST FRIDAY

All First Friday events will take place from 5:00pm–9:00pm. Visit slsc.org/first-fridays for updates and schedules.

Please note: First Friday events will follow all existing Saint Louis Science Center health and safety guidelines, including capacity guidelines. Visit slsc.org/exploresafe.



APRIL 1 The Matrix

Enter the Matrix at our April 1 First Friday and ponder the question, what is reality? Enjoy an evening filled with mind-bending activities, trivia, presentations and a building-wide game. The event will end with a screening of *The Matrix* (1999) in IMAX®.



MARCH 4 Batman

"You either die the hero or live long enough to see yourself become the villain." Embrace your inner dark knight on the premiere weekend of *The Batman* and celebrate the DC Comics Universe at First Friday: Batman on March 4! The evening will include trivia, featured presentations, educational activities and more.



MAY 6 Nick at Night

"Are ya ready, kids?" Spend the evening enjoying all things classic Nickelodeon at the May 6 First Friday: Nick at Night! The evening will feature presentations, activities, Nickelodeon-style gameshows and more. Come find out who will get slimed and don't forget to dress as your favorite '90s–'00s Nickelodeon character! The night will end with a screening of a classic Nickelodeon movie.



Science Center to Host Super Smash Bros. State Finals in May

After hosting the first ever in-person state championship for esports in Missouri, the Saint Louis Science Center will once again play host to a state championship in the spring of 2022.

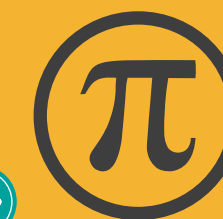
The Missouri Scholastic Esports Federation (MOSEF) has committed to producing the Super Smash Bros. team finals at the Science Center in May. St. Louis is a hotbed for the Super Smash Bros. game title, offering competitions on a regular basis and producing many talented players.

The OMNIMAX® Theater is poised to offer a wonderful experience yet again, offering immersive gameplay, larger-than-life battles and an exciting environment to cheer on potential champions.

According to President of MOSEF Tony Gragnani, "MOSEF is excited to be partnering again with the Science Center to provide opportunities to Missouri students to compete in esports in front of friends and family, while having a once-in-a-lifetime experience."

Be sure to check slsc.org/esports for more information and to reserve your tickets later this spring!

SAVE THE DATE



Save the Date for Pi Day!

Join us at the Saint Louis Science Center to celebrate Pi Day, Monday, March 14! Learn all about this magical number as we explore the meaning and importance of Pi.

Learn more about Pi Day at piday.org.

SAVE THE DATE | MAY 21, 2022

SciFest: The Great Outdoors Expo

Connect with STEM and the great outdoors at our free, all-day event! Visit with STEM experts and organizations focused on life and work outside. Find inspiration for your own outdoor hobbies, activities and adventures. More event information coming soon!

Note that event details during this time are subject to change. See the latest news about SciFest at slsc.org/scifest.

SciFest

HOCKEY

FASTER THAN EVER

Special Exhibition | Opening April 1

Member price | \$12.95

Experience the thrilling history, culture and science of hockey with more than 20 hands-on interactives including the “Hockey Science Lab” in our new special exhibition, *HOCKEY: Faster Than Ever*. Test your hockey knowledge with a scaled-down replica rink and experiment with speed, balance, reaction time and other skills important to the game of hockey.

Learn more at slsc.org/hockey.

SAVE THE DATE: Member Preview | Thursday, March 31

The touring exhibition, *HOCKEY: Faster Than Ever*, was produced by Flying Fish in coordination with the Montreal Science Centre, and is toured internationally by Flying Fish.



Now Playing at the OMNIMAX® Theater



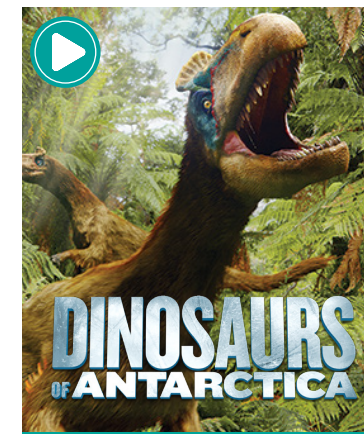
OPENS MARCH 11 | DOCUMENTARY FILM

In our newest OMNIMAX Theater film, *Ireland*, narrated by Liam Neeson, experience the vibrant beauty and fascinating history and culture of Ireland, as shown through the travels of author Manchán Magan and four teenage musicians around the Emerald Isle. **Learn more at** slsc.org/ireland.



NOW PLAYING | DOCUMENTARY FILM

Wings Over Water tells the story of the epic journeys of three amazing bird families using extraordinary footage of their fascinating behaviors, triumphs and challenges as these remarkable creatures soar across mountains, deserts, cities and forests while heading home to raise their young. **Learn more at** slsc.org/wings-over-water.



NOW PLAYING | DOCUMENTARY FILM

Roam the primitive forests and thick swamps with bizarre dinosaurs and colossal amphibians. Join intrepid Antarctic scientists on a quest to understand the ice continent's profound transformation—and to predict the future as humans drive dramatic change.

Learn more at slsc.org/dinosaurs-of-antarctica.

SAVE THE DATE



Top Gun: Maverick

FRIDAY, MAY 27

Feature-length film
Member Price: \$11.95

FULL STEAM AHEAD:

Congratulations to the 2022 YES Graduating Class

Congratulations to the latest graduating class of the Youth Exploring Science (YES) Program.

Teens in the YES Program explore areas like aerospace, agriscience, engineering, integrated health and medicine, cybersecurity and more. YES Teens also help spark our community's interest in STEAM with outreach programs at the Science Center, through community partner organizations and at pop-up science events.

Starting in their freshman year of high school, YES Teens meet regularly online and at the Taylor Community Science Resource Center over the course of the four-year program, developing the tools for a successful transition into higher education or careers in today's STEAM-skilled workforce. YES Teens go on to become engineers, healthcare professionals, community leaders and much, much more.

Meet some of our graduating YES Teens who are headed full STEAM ahead!



Aiden Henderson

STEAM GOAL: Computer Science | At Alabama A&M

"The YES Program for me is a reminder of a period of a lot of personal growth for me. During this time YES has also helped me grow more confident in myself and better my own abilities, specifically in public speaking."

Michael Bostic

STEAM GOAL: Chemistry/Pre-Med

At University of Missouri-Kansas City

"The YES Program has allowed me the opportunity to network with peers and global organizations."



Trinity Richardson

STEAM GOAL: Health Education

At Jackson State University

"YES means an experience. [The YES Program] has given me an empowering learning experience, while also at the same time equipping me with lifelong skills."

Nayla Nava

STEAM GOAL: Acting | At Los Angeles City College

"The YES Program has greatly impacted my life and prepared me to work in professional environments. Without the YES Program I wouldn't have been able to network with others, and I am extremely honored to have had that training."



Indya Hutchins

STEAM GOAL: Engineering | At Texas University

"The YES Program was my first ever job experience and it helped me get an understanding of the workplace, like the environment and what it means to work with other people. I've developed lifelong skills that I will use in my daily life. I've managed to stay in the program and it has helped me with opportunities for getting into certain programs like National Honors Society. The YES Program has been a positive outlet for me."

Amber Coach

STEAM GOAL: Undecided

Attending Southeast Missouri State University

"The YES Program has been a way for me to meet new people, and I have really enjoyed my time here, especially working in the cybersecurity component. I've gained so many social skills working in the Oakland Building and even some ways [of overcoming conflict]. I feel like that's a very important skill to have when going into any field."

Gabrielle Stalling

STEAM GOAL: Biology | At Loyola University

"The YES Program has helped with my public speaking skills. The YES Program has also helped me gain lifelong, lasting friendships."

Isaiah Tyson

STEAM GOAL: Veterinary Medicine

At Southeast Missouri State University

"I don't know exactly what YES means to me but it has helped me a lot with my social skills. YES has also helped me with my independent thinking."



IN 2021:

+ YES reached **OVER 1,600 CHILDREN** through programs like Summertime Science and Pop-Up Science.

+ YES distributed **1,600 STEAM ACTIVITY KITS** through community partner organizations.

TO DATE:

+ Over **1,200 TEENS** have completed the YES Program.

Adrianna Toran

STEAM GOAL: Biology: Animal Science or Pre-Vet

At Missouri Western University

"[The YES Program] means a lot of opportunities and friendship for me. I've gotten to learn so much from the program. It's prepared me for the major I want to go into which is Biology, Animal Science or Pre-Vet. (I've wanted to be a vet since I was four years old.) YES basically proved why I wanted to go into biology or be a science major. I'm great at science, and I'm glad I was a part of this program as long as I could be. I appreciate everyone who has been my supervisor and all of the friends I've made from the YES Program."

Kandace Scott

STEAM GOAL: Marketing & Business

At Saint Louis Community College

"The YES Program has helped shape me into the person that I am today with multiple opportunities to meet new people and helping me learn new things for my future."

Laila Tyler

STEAM GOAL: Criminal Justice

At University of Missouri-Kansas City

"The YES Program has helped me learn how to deal with difficult situations. YES has also helped me with managing time correctly."

Learn more about the YES Program at slsc.org/yes.
Want to make a gift in support of the YES Program?
Donate to YES at donations.slsc.org/yes.



SAINT LOUIS SCIENCE CENTER

Esports



THE SCIENCE CENTER HOSTS The 2021 Esports Rocket League Championship

The Saint Louis Science Center was excited to host the Missouri Esports State Championship Series Featuring Rocket League. Hosted by the Missouri Scholastic Esports Federation (MOSEF), the top eight teams in the state of Missouri were invited to compete in an end-of-season playoff to crown a Rocket League high school champion.

For the first time ever, the Science Center welcomed the community into the OMNIMAX® Theater for competitive gaming. Families, students and the community showed up to provide support and encouragement for their teams and schools. The daylong event wrapped with Hickman High School from Columbia, MO, taking its second state championship in as many years. They defeated teams from across the state, including three local foes, Francis Howell, Saint Louis University High and Lindbergh.

MOSEF president Tony Gragnani says, "We are thankful for all of the support the Saint Louis Science Center provided in helping us make a truly memorable event for our students and attendees. We have heard nothing but positive comments from our students and coaches and look forward to future events with the Science Center." The Science Center is extremely grateful for the opportunity to host this event and looks forward to providing future opportunities to high school and collegiate students.

For more information on the Science Center's esports program, please visit slsc.org/esports. To learn more about MOSEF or to start a scholastic esports team or club of your own, please visit mosef.org.

FOUNDING PARTNERS:

EVERNORTH

HYPERX

BURNS & MCDONNELL



OFFICIAL SPONSORS:

NZXT

SSMHealth



NEW OPEN PLAY Esports XP Sessions

The Saint Louis Science Center is announcing an exciting addition to our free open play opportunities.

This spring, be sure to try our Esports XP Sessions. Participate in free sessions focused on PC Building, Streaming Basics, Casting Basics and Game Design. These 45- to 60-minute sessions will be structured with limited participants, allowing our staff and participants to explore the basic concepts behind some of the most important topics in gaming and esports.

"Our new Esports XP Sessions are designed to offer the community a brief glimpse of our larger, paid Enrichment Programs," explains Doug Stanze, director of guest services. "During these sessions, players will have access to the Science Center's Gaming Lab, top-of-the-line equipment and organized instruction."

Visit slsc.org/esports for more information and to learn how to reserve your spot today!



Welcome Back, SLUH's Jr. Bills

The Saint Louis Science Center is excited to host Saint Louis University High (SLUH) for their second semester of competitive esports!

Coming off a successful inaugural season, SLUH will be fielding three varsity teams, battling in League of Legends, Valorant and Super Smash Bros. Led by team manager David Callon, the SLUH Jr. Bills esports teams are poised for another successful run in the spring.

"The Saint Louis Science Center is excited to provide this opportunity to our neighbors at SLUH. Our program is founded on the ability to provide resources and access to gaming and esports to our community," said Director of Guest Services Doug Stanze.

"With the tremendous success of the SLUH esports team last fall," Stanze continued, "we are very thrilled to see their program continue to progress and grow. The Science Center is proud to be a part of this team's success."

The Jr. Bills will call the Science Center home for practices and competitions multiple times per week. Be sure to stop by the Dino Den on the Lower Level and see the teams in action through the end of April.





What Does a Scientist Look Like?

What does a scientist look like? The Saint Louis Science Center is addressing this question with a new series of informational posters funded by the Association of Science and Technology Center's (ASTC) If/Then Initiative. Each poster starts with the sentence "This is what a scientist looks like" and profiles a different woman in STEM, including herpetologist Dr. Earyn McGee, astrophysicist Dr. Burcin Mutlu-Pakdil, molecular biologist and artist Dr. Beata Mierzwa and more.

The If/Then Initiative tells the stories of women in STEM through grants, posters and banners, an online project library featuring programs, activities and digital media, and more. Based on the mantra "If we support a woman in STEM, then she can change the world," the initiative's focus is on diversity in STEM—not just for women, but for people of color and various abilities as well.

In addition to social media posts, the Science Center is promoting this project in both the Oakland Building, where guests will be able to find six posters throughout the galleries, and the Taylor Community Science Resource Center. There, eight more posters will be on display.

After debuting over the Martin Luther King, Jr. holiday, the posters will be available throughout the summer. Come see if you can find them all!

THIS IS WHAT A SCIENTIST LOOKS LIKE



DR. EARYN MCGEE
HERPETOLOGIST & SCIENCE COMMUNICATOR
Advocates for Black women in wildlife careers, and is the creator of popular social media game #FindThatLizard which teaches players lizard facts. [@findthatlizard](#)

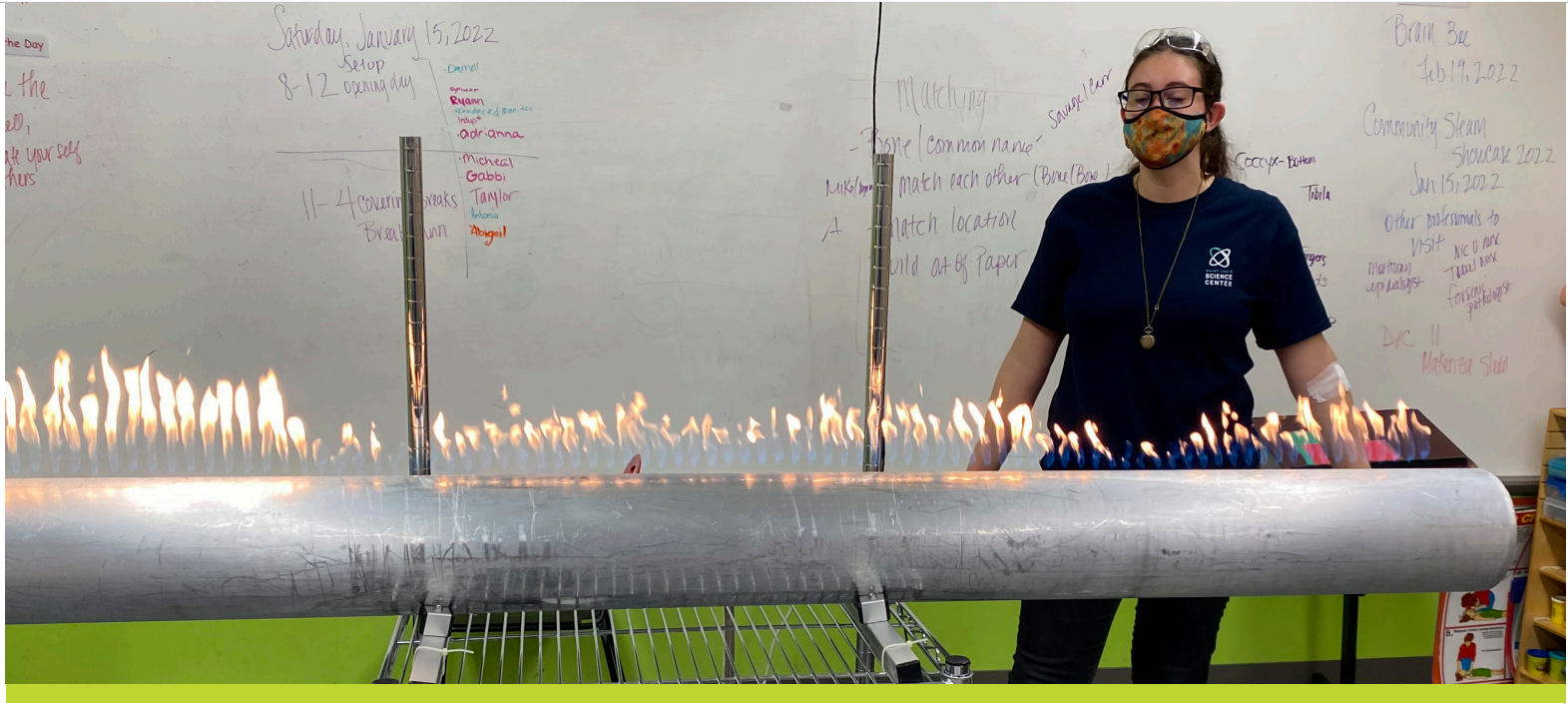
THIS IS WHAT A SCIENTIST LOOKS LIKE



DR. MITU KHANDAKER
VIDEO GAME DESIGNER AND ENTREPRENEUR
Designs, codes & researches games, and teaches game design & engineering with an emphasis on gender & racial equality in STEM. [@mitukhondaker](#)



View the If/Then Collection online at astc.org/ifthen/about-the-if-then-collection.



Science Center educator Sarah demonstrates the science of sound using a Rubens' tube (above) and "singing goblets" (below).

A SOLID Collaboration with the Sheldon Concert Hall

For many years, the Saint Louis Science Center has partnered with the Sheldon Concert Hall to offer schools the Science Of Learning Instrument Design (SOLID) Project. This is a free, three-part project for teachers where students enjoy an interactive demonstration from a Science Center educator and instruction from a Sheldon teaching artist. They are then challenged to design and create their own musical instruments. At the end of the school year, select instruments are put on display at the Sheldon Art Gallery. The SOLID project connects all of the STEAM elements by explaining the science behind sound and having students use the engineering design process to build their own instrument.

Through the pandemic the Science Center and Sheldon teams have been able to continue the partnership by offering virtual presentations and reaching students via Zoom. Offering virtual sessions has created new opportunities to connect with new classrooms and students by being able to offer the program nationally. The Science Center and The Sheldon have presented the project to classrooms in New York, Florida and more.

In addition to offering the program virtually, more recently the Science Center and the Sheldon have been able to go back into schools, using the new vans courtesy of Frank Leta Honda for transportation. Students and teachers are excited to have the program back in classrooms so they can participate in person.



A Measurable Impact in 2021:



850

Students Served



26

Schools Served



Watch a video explaining more about the SOLID Project and learn how to bring the program to your school at thesheldon.org/solid.



The Community STEAM Showcase Shines a Spotlight on Diversity in Science and Technology

For over 20 years the Saint Louis Science Center has hosted the Community STEAM Showcase (formerly known as the Minority Scientist Showcase) to highlight the accomplishments of people of color and women in STEM. Although the COVID-19 pandemic made things look a little different when the event took place during January's Martin Luther King, Jr. holiday weekend, the Community STEAM Showcase helped shine a spotlight on the diversity of the scientific community.

As the sole exhibitor for this year, the Museum of Black Inventors, a pop-up museum located in St. Louis, illustrated many of the contributions African Americans

have made in STEAM that are often overlooked and left out of the history books. Some of these notable STEAM professionals included Dr. Charles Drew, a surgeon and medical researcher who helped develop a means of processing and storing blood; Frederick Jones, an inventor and entrepreneur who created an air conditioning unit for automobiles; and Lonnie Johnson, an inventor and engineer who created the Super Soaker water gun.

Although this year's event was scaled back due to the pandemic, the Science Center's Community Science department was on hand to pass out science kits providing at-home learning and introducing kids



to STEAM topics like engineering, art, astronomy and critical thinking. From DIY maze and skyscraper activities to a DIY stargazer kit, attendees had a variety of options for discovering science and technology.

The Missouri History Museum also provided take-home kits that introduced kids to activities like writing affirmations and creating their own peace signage, while STEM STL provided water bottles highlighting summer camp options throughout the St. Louis area.



More than 140 STEAM kits
were given out by the team to
members of the community.

SAVE THE DATE

Give
STL
Day.orgSM

POWERED BY THE
St. Louis Community
Foundation



THURSDAY | MAY 5, 2022

Mark your calendar to support the Saint Louis Science Center and make this year's Give STL Day the most impactful one yet! Give STL Day is an annual community-wide effort to support nonprofits making a difference in the St. Louis region. Organized by the St. Louis Community Foundation to grow philanthropy in the metropolitan area, Give STL Day is a 24-hour, online giving event celebrating our community's nonprofits, their missions and the many ways they make our region special.

A gift to the Science Center for Give STL Day helps support open access to STEAM education experiences for everyone in the St. Louis community and region.

See how your support for the Science Center impacts STEAM education at slsc.org/impact.

Want to learn more about Give STL Day?

Visit www.givestlday.org.



American Farm Bureau Federation Visits GROW Gallery

On a beautiful Saturday this past November, the American Farm Bureau Promotion & Education (P&E) Committee visited the GROW Gallery and the Saint Louis Science Center.



Farmers and ranchers from 10 different states hosted an “Ask A Farmer” table in the GROW Pavilion for guests to ask questions of those who grow and raise the food they eat each day.

St. Clair County farmer Stacey Lauwers found a great deal of common ground between farmers and Science Center guests in a conversation she had with a young guest named Taylor.

“She has never visited a farm,” Stacey says, “but her friend told her that pigs live on farms and I learned that she loves pigs. Lucky for me, an American Farm Bureau P&E committee member from North Dakota raises pigs, and I introduced her to Taylor. She shared several photos with Taylor as well as told her how she cares for the pigs on her farm. I am confident that Taylor was happy to meet an actual pig farmer that day at the Science Center!”



SAVE THE DATE

Save the Date for Beef Day!
MAY 7, 2022

Join us at the Science Center for Beef Day on Saturday, May 7. Beef Day is a free event recognizing the role of Missouri farmers and the animals they raise. Come to the GROW Gallery for a fun-filled day of activities, science and more.

Recent Grants Provide Support for the YES Program

So much has happened since the end of the year for the Youth Exploring Science (YES) Program! We'd like to recognize the generous support of these companies and organizations for their recent support of the Science Center's YES Program.

\$5,000

FOR: Youth Exploring Science
FROM: Olin Corporation Charitable Trust
RECEIVED: September 16, 2021



\$5,000

FOR: Youth Exploring Science
FROM: Blues for Kids
RECEIVED: September 28, 2021



\$10,000

FOR: Youth Exploring Science
FROM: Saigh Foundation
RECEIVED: February 1, 2022
theSAIGHfoundation

\$15,000

FOR: Youth Exploring Science
FROM: Norman J. Stupp Foundation Commerce Bank, Trustee
RECEIVED: November 11, 2021



\$64,795

FOR: Youth Exploring Science's Integrative Medicine component
FROM: CIGNA Foundation
RECEIVED: November 19, 2021



\$100,000

FOR: Youth Exploring Science's Stemtastic Camp
FROM: The Boeing Company
RECEIVED: September 2, 2021



\$10,000

FOR: Youth Exploring Science
FROM: Toyota Motor North America
RECEIVED: December 20, 2021
TOYOTA



Remembering Donna Wilkinson



This past November we were saddened by the passing of longtime advocate Donna Wilkinson, whose longstanding friendship and support of the Science Center (as well as numerous nonprofits across the St. Louis region) will be missed.

For over two decades, Donna volunteered her time in service to the Science Center as a Commissioner, president of our Board of Trustees and our Institutional Advancement Committee Chair, and she ultimately became one of our few Life Trustees along with John McDonnell, Jerry Ritter and Des Lee.

But her commitment to our mission did not stop there. Donna was integral to the success of every fundraising campaign launched by the Science Center, from working with campaign chair Jerry Ritter as assistant chair to help secure \$43 million for our Transform Tomorrow Campaign, to serving as the chair of the Bridge to the Future Campaign which ultimately raised in excess of \$75 million, and she was tireless in her dedication. Donna also served as chair or member of every Science Center gala, always sharing her expertise to help make our biggest biennial fundraising event successful and vibrant.

Donna has been instrumental to the success of our mission.

Donna was also committed to helping establish the Youth Exploring Science (YES) Program, and she recognized the potential impact it could have in the community. Through funding from August Busch II and Jack Taylor, among other major donors, she made it possible for the YES Program to connect local students with informal science and technology learning. For over 20 years now, YES has continued to inspire area youth to pursue post-secondary education and careers in STEAM (science, technology, engineering, art and mathematics) fields.

All of us at the Science Center are humbled by Donna's service in support of our mission "to ignite and sustain lifelong science and technology learning" and how graciously she gave back to the community in which she lived.

In honor of Donna, we have established a memorial fund benefiting the YES Program. If you'd like to help recognize Donna's legacy and the impact of the YES Program, consider a donation to this memorial fund in her honor at donations.slsc.org/yes.



SAINT LOUIS SCIENCE CENTER

5050 Oakland Ave.
St. Louis, MO 63110

NewScience is always GREEN

The Saint Louis Science Center is a committed steward of the environment. We are proud to continue to offer the digital and interactive version of *NewScience* at slsc.org/newscience. If you would like to opt for a sustainable choice and only view *NewScience* digitally, please send an email to us at memberships@slsc.org to no longer receive a paper subscription.

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Join the Galileo, Newton or Einstein society as a Supporting Member of the Saint Louis Science Center.

Supporting Members play a vital role in powering the development of accessible STEAM education experiences, sustaining impactful community outreach programs like Youth Exploring Science and ensuring the financial health of the Science Center for curious minds throughout the St. Louis region.

Plus, with a Supporting Membership you'll enjoy exclusive privileges like VIP access to events, special recognition and the knowledge that you're playing a powerful part in supporting science for our future.

Learn more at
slsc.org/supporting-memberships.