

newscience

NEWS FOR MEMBERS AND FRIENDS OF THE SAINT LOUIS SCIENCE CENTER

SUMMER 2022



“Our brains are
built to benefit from

PLAY

no matter what our age.”

—Theresa A. Kestly

Connect with curiosity.

Dear Friends of the Saint Louis Science Center,

Summer is here, and it's an exciting time in St. Louis. With the warmer weather and sunny skies, I can't help but think of the bright future ahead for our region and our community.

Why? St. Louis is a home for STEAM—science, technology, engineering, the arts and math. Reports like the STL 2030 Jobs Plan show that focusing on science and technology industries like aerospace, biomedical and health services, geospatial, advanced manufacturing and more has the potential to make a transformational impact—not just strengthening our local economy, but also helping to advance communities that have been historically unrepresented in STEAM-related opportunities. We at the Science Center believe that everyone should have these opportunities.

We work to connect people with the science in the world around us and inspire the next generation of STEAM-skilled workers needed for the careers driving the 21st century economy. But we don't have to wait for tomorrow to celebrate the science and technology happening each day throughout our region. And in this issue of *NewScience* we're excited to highlight a number of those local connections and what's happening right here in St. Louis, both inside the Science Center and out.

In *Science Today*, you'll hear from Dr. Matthew Lew, assistant professor of electrical and systems engineering at Washington University's McKelvey School of Engineering, about the work his lab is doing in the field of imaging science as they ask the question, can a computer help make a better camera?

In St. Louis, one prime example of STEAM at work is The Boeing Company, which provides nearly 16,000 jobs and drives innovation in fields like aerospace, defense and advanced manufacturing. On page 28, I encourage you to read about Boeing's support for our Youth Exploring Science (YES) Program's new STEMtastic Camp. This summer the STEMtastic Camp is igniting curiosity by bringing hands-on science and technology learning to areas often underserved in access to quality STEAM experiences, including Jackson Park Elementary and Glasgow Elementary in the University City and Riverview Gardens school districts. I'd like to take this opportunity to express our gratitude to Boeing for their continued generosity, partnership and support.

The bonds we build with our community—those at the heart of our mission to ignite and sustain lifelong science and technology learning—are made possible and sustained by our supporters, from philanthropic partners like Boeing to members and friends like you. With science, there's always something new to learn about the world around us. I hope you have a safe and fun summer filled with discoveries, and I speak for all of us here at the Science Center when I say, we can't wait to see you soon.



Sincerely,

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.



Board Members

Saint Louis Science Center Board of Commissioners

Mark J. Bulanda—Chairman
Timothy J. Eberlein, M.D.—Vice Chairman
Joshua Randall—Secretary
David Baringer
Pratyush Kumar
Dr. Gena Gunn McClendon
Dr. Glen Stettin
Dr. Donald M. Suggs
Frank Thurman
Dr. Mark S. Wrighton

Saint Louis Science Center Board of Trustees

Kevin R. Alm
Barbara Bridgewater
Barry T. Cervantes
Lynn A. Cornelius, M.D.
Jim Curran
Susan S. Elliott
Richard C.D. Fleming
Paris Forest
G. Patrick Galvin
Harvey A. Harris
Jerome Harris—Ex-Officio
Dr. Martin H. Israel
Jamie Jabouri
Frank D. Jacobs
Tishaura Jones—Ex-Officio
Robert J. Krieger
Dr. Toni Kutchan—Ex-Officio
Carol B. Loeb
John F. McDonnell (Life Trustee)
RADM Lee J. Metcalf, USN (Ret.)
Elizabeth E. Niedringhaus
Kenneth A. Olliff
Dr. Sam Page—Ex-Officio
Jerry E. Ritter (Life Trustee)
Donn Rubin
Kent Schien
Kathleen R. Sherby
Judy Sindecuse
Zar Toolan
Kenneth L. Wagner
Candace Webster—Ex-Officio
Dr. David J. Werner

Summer Hours

Thursday–Saturday 9:30am–4:30pm
Sunday 11:00am–4:30pm
Closed Tuesdays & Wednesdays
Holiday Hours: See Calendar Insert
WITH Thursday–Monday 9:30am–5:30pm
Closed Tuesdays & Wednesdays

Contact

314.289.4400
slsc.org
Saint Louis Science Center
5050 Oakland Avenue
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:
314.289.4424

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...



4 Membership Matters

Take a look back at our Member Preview of *Ireland* at the OMNIMAX® Theater and a look forward at fun, exclusive summer events. Plus, get a glimpse into the upcoming Member Access Portal.

6 Science Today

Can a computer help make a better camera? Explore how computational imaging and the field of imaging science are changing how we see the world around us with guest writer Matthew D. Lew, PhD, assistant professor of electrical and systems engineering at Washington University.

10 Gallery Spotlight

We are thrilled to be reopening the Discovery Room after two long years! See the updates to the space and find out all about the Discovery Room's Member Week.

12 Science Never Stops

Medical imaging in the olden days; plus, astronomy dates and news from the Energy Stage.

22 Community

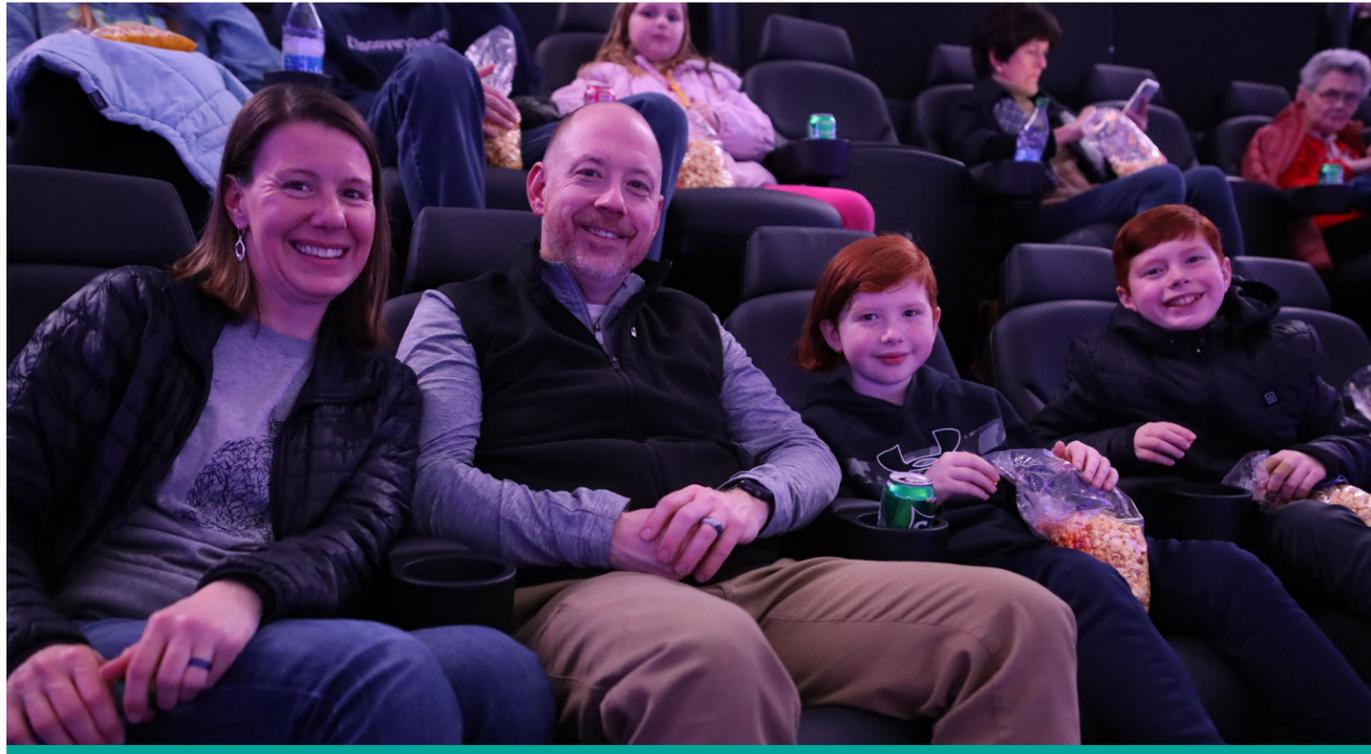
Learn about Girls Who Game and the new Science Center ROAR! Esports League. Meet YES Teen Monet Witherspoon and read about the recent return to in-person Community Partner meetings. Plus, we announce the 2022 Loeb Prize winner.

28 Partnership & Support

Read about this summer's new STEMtastic Camp and a unique opportunity for the YES Teens as they've prepared for it. Then, read about SSM Health's sponsorship of the Esports Program and some of the recent grants, sponsorships and support helping make our mission possible.



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



RECAP OF RECENT MEMBER EVENTS

Our 2022 member events have been all kinds of fun!

We enjoyed welcoming our members back in person to see the OMNIMAX® preview of *Ireland* in early March, the member preview of our special exhibition *HOCKEY: Faster Than Ever* in late March, and two member missions in April – *Stars Around the World* at the Planetarium and *Storm & Weather* at Energy Stage. In May we hosted members for a collections tour *Inside the Vault*.

Director of Membership Vickie Corkhill enthused, “It’s been so fantastic having members back in the building, and they seem as happy to be here as we are to have them here!”

Next up is the member preview for the newest OMNIMAX® film, *Ancient Caves*, on June 30. We would love to see you there! To reserve tickets for *Ancient Caves*, call 314.289.4424 starting June 9.



Upcoming Member Events



JUNE 30 | 6:00PM AND 7:30PM
MEMBER PREVIEW: ANCIENT CAVES

Tickets available June 9

Join us for an epic science adventure in the world’s most hidden realms! Our newest OMNIMAX® film, *Ancient Caves*, will be shown and popcorn and drinks will be served. Following the film will be a Q&A with the film’s director, Jonathan Bird. Showtimes at 6:00pm and 7:30pm.

AVAILABLE THURSDAY, JULY 14
VIRTUAL COLLECTIONS TOUR: MUSICAL TECHNOLOGY

No tickets required!

Member perks from the comfort of your home! Our next Collections Tour will be a virtual one you can watch from your couch, any time you like, starting July 14. Join Manager of Collections & Special Projects Kristina Hampton as she takes you on a behind-the-scenes tour of the Science Center’s extensive collections of musical instruments and technology.

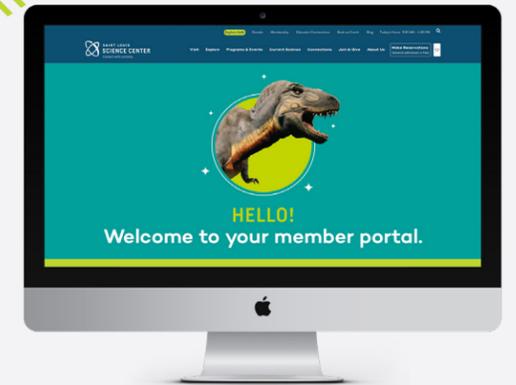
AUGUST 11 | 5:00PM-8:30PM
MEMBER EVENT: ESPORTS WITH CARDINALS KIDS CLUB

Tickets available July 21

Join the YES Teens and the Science Center’s esports team for a fun and educational member event that will include the Cardinals Kids Club! Educational sessions will explore technology basics and computer science as well as augmented reality and virtual reality. Kids will be able to enjoy video gaming, enter the Home Run Derby and even try out the augmented reality rock wall!

THE MEMBER ACCESS PORTAL IS

Your MAP to Membership



The Member Access Portal is ready to launch!

The portal contains all the most important information about upcoming Science Center events and current gallery offerings, as well as member-exclusive content like virtual Collections Tours. It’s a place where you can access information about membership, plan your next visit and even enjoy science articles, videos and experiments from the comfort of home. We’ve gathered everything in one easy-to-access space for you, and we hope you enjoy it!

Have you ever worried that our email announcements get lost in your inbox and you’re missing out on special member events? Now you can skip sifting through your inbox and head straight to the portal.

You’ll want to check the portal regularly for updates, as well as polls, surveys, contests and more designed to make the most of using your Member Access Portal!

Members will receive an email with instructions about how to create a personal login to the Member Access Portal.

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

STEM EXPERT SPOTLIGHT



Matthew D. Lew, PhD, is an assistant professor of electrical and systems engineering at Washington University in St. Louis. He earned a PhD in Electrical Engineering from Stanford University in 2015 and started his lab at Washington University shortly thereafter. His lab specializes in developing computational super-resolution microscopes to sense the movements of and interactions between molecules in chemical and biological systems. He teaches undergraduate and graduate courses on applied linear algebra and modern optical imaging. Over the past 5 years, he has partnered with the Saint Louis Science Center to engage Washington University students in Portal to the Public, a workshop series educating scientists on how to communicate their work in an informal learning environment.

Photo Credit: Whitney Curtis

CAN A COMPUTER HELP MAKE A BETTER CAMERA?

(Yes, but We're Talking About Much More than Instagram Filters.)

Imagine everything that happens when you snap a photo on your smartphone. A “shutter” opens within the sensor of your phone (most shutters are electronic, not mechanical these days). Millions or even billions of light particles, called photons, excite electrons within the sensor to generate current that is converted into digital ones and zeros—bits—that are the digital facsimile of your photo. However, the picture isn't perfect; the lighting could be too bright in the background, the phone's flash may make skin tones too blue, and the sensor itself might add blocky noise to your perfect composition. Your phone's software magically corrects all of these blemishes, and *voilà*, you have a beautiful masterpiece displayed on your screen.

Continued on the next page



(continued)

Everything that happened, from the tap of the shutter button to displaying the image on your screen, is part of a process that engineers call “image capture and processing.” However, a new form of imaging is making a splash throughout consumer electronics, medical clinics and even university research labs. It is called computational imaging, and the technology has been driven by developments in a field you may not have heard about: Imaging Science.

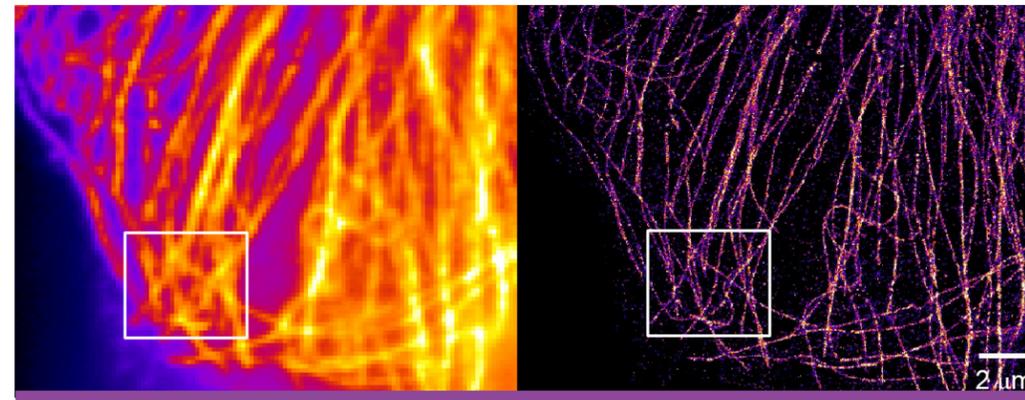
Imaging scientists study both *the physics* of how images are captured—how does light interact with cells under a microscope, or how does neural activity in the brain generate magnetic fields?—*in addition* to the mathematics and statistics of how we can perform real world tasks using those images—is there a tumor in this image, or how far is the pedestrian from my car? Throughout history, imaging scientists focused on improving physical instruments, creating lenses with fewer aberrations or electromagnets capable of generating stronger magnetic fields, for example, but after the dawn of the digital revolution imaging scientists began pursuing a revolutionary idea: could a physical instrument and a computer *work together*, rather than one after the other, to produce more useful images? The modern form of computational imaging was born. The prospects of computational imaging are tantalizing; it enables humanity

to study objects and processes that cannot be seen without its unique blending of physics, mathematics and computation.

Scientists and engineers have worked for centuries to build microscopes to see the tiny molecular machines at work in biology—the DNA, proteins and other biomolecules that enable life. Studies of these machines have been held back by a centuries-old belief that one could never achieve a resolution better than half the wavelength of light, or approximately 250 nanometers (nm)—one hundred times the size of a protein. Three scientists, Eric Betzig, Stefan W. Hell and William E. “W. E.” Moerner, were awarded the Nobel Prize in Chemistry in 2014 for the development of super-resolved fluorescence microscopy. **These technologies break the so-called “diffraction barrier” of light microscopy and produce images with details finer than 250 nm in size, but not by building bigger and better lenses.**

Instead, one flavor of super-resolved microscopes, called single-molecule localization microscopes (SMLM), uses single molecules and two big ideas in a surprising yet simple way. Step “zero” begins with detecting specific target molecules one at a time in a cell—no easy feat since there are an Avogadro’s number of molecules— 10^{23} —present.

(Learn more in W.E. Moerner’s Viewpoint: Single Molecules at 31: *What’s Next?* in the Digital Edition of *NewScience*.)



Microtubules in a fixed BSC-1 cell. On the left, the diffraction-limited image, and on the right a super-resolution image.

Photo Credit: WeoMoe, Wikimedia Commons

Next, scientists need to make molecules blink, like lights on a Christmas tree. If all the lights—the fluorescent molecules—emit at the same time, the optical microscope overlaps their images together so that the image of the structure is blurry. To instead make the molecules blink “on” and “off” over time, scientists can shine special colors of light on the molecules or add chemicals (oxidizing and reducing agents, for example). Once the molecules are blinking, the computational imaging process begins. Special algorithms perform a process called “localization” where the position of each molecule within each image is computed using “Regularized Maximum Likelihood” (RML) methods—flexible algorithms using established physics and mathematics along with scientifically reasonable “guidrails”—to construct the image. Importantly, the uncertainty of knowing the location of each molecule is much smaller than the size of the image of the molecule on the camera—just like how GPS’s uncertainty locating your position at the top of a mountain is a few meters, which is much smaller than the width of the mountain. A final image of the biological structure is reconstructed point-by-point, or molecule-by-molecule, just like a pointillist painter creates a masterpiece. Surprisingly, the resolution of this masterpiece is orders of magnitude better than those of standard microscopes, approaching 1 nm or the size of a single molecule.

The future of computational imaging is bright; the McKelvey School of Engineering at WashU launched an interdisciplinary PhD program in Imaging Science in 2018. Computational imaging (specifically engineering how the scene is illuminated and how the resulting images are analyzed) are at the heart of innovative consumer

technologies like Microsoft Kinect and Apple’s Face ID. Computational imaging is also improving the capabilities of medical imaging, enabling MRI, SPECT and CT scans to create higher resolution images with greater sensitivity more quickly. Finally, in the Lew Lab at Washington University, students are creating new optical microscopes that bend light so that scientists can study both where molecules are and how they are oriented or organized within biological samples. These new capabilities aim to reveal the hidden links between how biological molecules are organized and tough-to-fight neurodegenerative diseases like Alzheimer’s and Parkinson’s.

While it’s difficult to predict what new innovations are around the corner, one thing is clear. Imaging scientists are demonstrating the age-old adage again and again: seeing is believing.

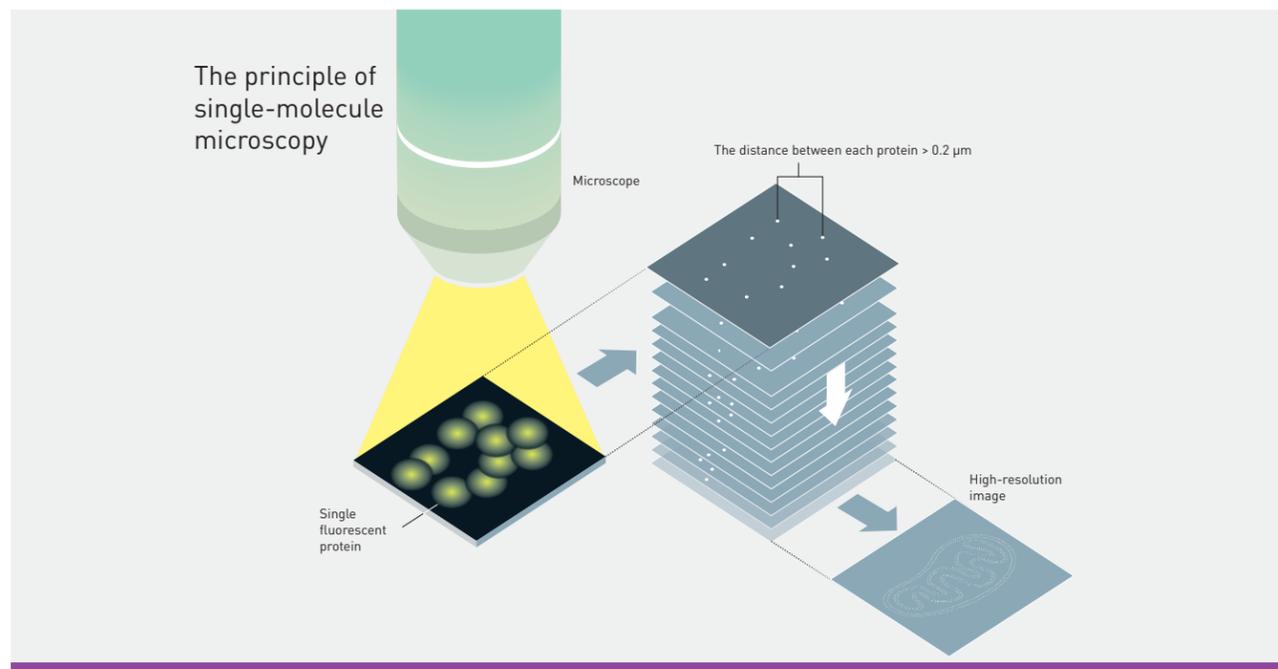


Illustration: © Johan Jarnestad/The Royal Swedish Academy of Sciences

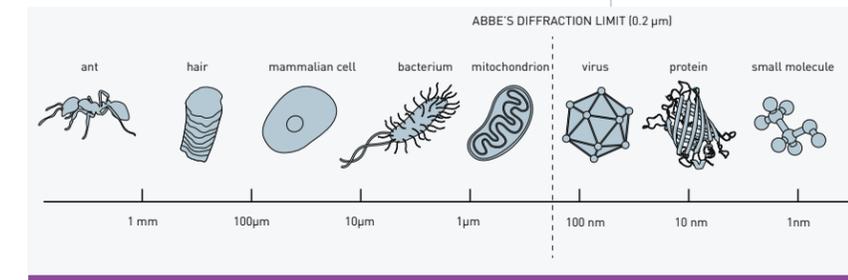


Illustration: © Johan Jarnestad/The Royal Swedish Academy of Sciences



See additional resources related to imaging science at slsc.org/newscience.



GALLERY SPOTLIGHT

Welcome back to your Discovery Room!

DISCOVERY ROOM REOPENING SUMMER 2022

After a two-year closure, we are thrilled to welcome members and guests back to the Discovery Room, a gallery that provides time and space for children (ages six and under) and their caregivers to play, build, learn and discover together.

The Discovery Room has undergone some changes while closed, providing upgrades as well as a fresh, engaging space for young learners and their caregivers. Some of the guest favorites from the Discovery Room's previous incarnation have been retained, including the saltwater aquarium, the wind machine, the STEAM easel and the play-on rocket ship (now with a new tube slide)!

New additions will align with the Discovery Room's goal of supporting children's social, emotional, cognitive and motor development, while empowering caregivers to fulfill their roles as their children's first teachers.

These include a crawler corner for infants and young toddlers to safely explore and play, a magnet wall, an engineering area for building with blocks and other materials and the new Creation Station.

As often as possible, we like to make sure that members experience our newest offerings first. As a result, the Discovery Room's first week of reopening, June 2-6, will be Member Week. Starting June 9 tickets will become available to the general public.

Each Discovery Room session is 60 minutes in length and requires at least one adult for every four children. These sessions will be offered Thursday through Saturday at 10:00, 11:30am and 2:00pm. On Sundays the sessions will take place at 11:30am and 2:00pm. Summer sessions last through September 6.*

Visit slsc.org/discovery-room to learn more about our relaunched Discovery Room and other early childhood programs.

*Times are subject to change; check the website before visiting.



Preschool Science Series

Formerly known as Discover Science with Me, our Preschool Science Series is moving to a new location: The Learning Lab.

The Life Science Lab Activity Benches have been designated as the new space for our Preschool Science Series, and the area has been renamed the Learning Lab. But despite the new location and name, parents of preschoolers will be happy to hear that the program will continue to offer fun and engaging learning experiences for young scientists and their grownups.

This program is designed especially for young scientists, ages three to six, and their families and friends. Sessions provide opportunities for little ones and their caregivers to wonder, play and discover together.

Sessions include experiments and playful, hands-on STEAM exploration as well as activities focused on helping children develop motor, language and cognitive skills. The activities will also provide ideas for caregivers to support their child's learning.

Preschool Science Series sessions last 45 minutes and are guided by a Science Center educator. Tickets will be \$10 per child for members and \$12 per child for nonmembers. Adults are free, and there must be one adult for every four children. Due to space limitations, if classes are full, it may not be possible to accommodate multiple adults per child.

These sessions are offered on weekends only, Saturday at 10:30am and Sunday at 1:00pm.

MEET THE TEAM

Brittaney Elliott

EARLY CHILDHOOD INTERPRETER

Guests with small children may already know Brittaney Elliott, early childhood interpreter, who works to ignite the spark of curiosity in the minds of our littlest guests. We spoke to Brittaney about her experiences at the Science Center interacting with kids and their parents to help bring science into the forefront of their lives.



Q: Brittaney, how long have you been with the Saint Louis Science Center?

A: I have been with the Saint Louis Science Center since November of 2019.

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

A: Guests can usually find me in the Discovery Room, working to prepare for its reopening. Sometimes I am in other galleries with an early childhood tabletop area, or helping children learn how to play games like the corn game in the GROW Pavilion.

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

A: I have always been intrigued by the biological sciences such as environmental science, conservation, ecology and zoology. My interest in art has always walked hand in hand with my interest in science since I am a visual learner. Learning science through art is always a fun way to engage with others.

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

A: Some recent activities I have helped facilitate for members and guests include Rig-a-ma-Jig Jr. and tabletops such as "Engineering Origami," "Innovating Ice Cream," and "What Part of the Plant Do We Eat?"

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

A: I have had so many fun interactions with guests, but a few recent favorites have been during our Discover Science With Me: Cardboard Construction sessions. One little girl created a large robot and when asked what job her robot had, she announced that it would protect her from the large T-Rex on the Lower Level. While the little girl continued her Science Center adventure, she graciously allowed the Discovery Room to borrow her robot to protect the classroom until she was ready to leave for the day. I love these interactions with guests to see their imagination at work and how they apply that to become scientists.

Q: What is your proudest moment as a Science Center educator?

A: I am proud to be a part of an institution where we encourage guests to geek out and spark their interest in anything science related. When I see that spark or can geek out with someone over a certain subject, I feel like I have done my job as an educator.

Would you like to join our team?
See [page 31](#) for more details!

REVEALING THE Hidden



In 1895, X-rays were discovered by Professor Wilhelm Conrad Roentgen.

As he worked with a glass cathode ray tube, he observed a fluorescent glow on a nearby table. When Roentgen shielded the tube with heavy black paper, he observed a fluorescent light generated a few feet away from the tube. He concluded that a new type of ray was being produced and found that this new ray could pass through most substances, casting shadows of solid objects.

Roentgen also discovered that the x-ray could pass through human tissue, but not bones or metal objects. He began to experiment with x-rays and used photographic glass plates to capture a film of his wife's hand, showing the bones beneath the surface. Within a year of his discovery, the application of x-rays in medicine for diagnosis and treatment was firmly established.

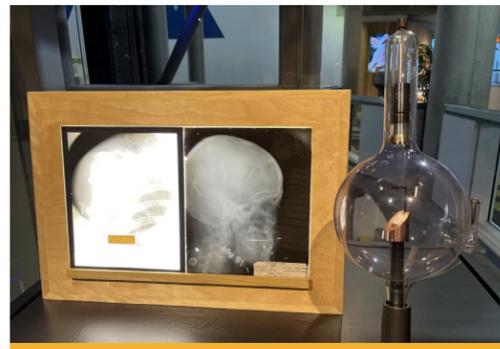
What is a cathode ray tube?

Invented in 1855, cathode ray tubes are sealed glass tubes with most of the air evacuated. When high voltage is applied across two electrodes at one end, this causes a beam of particles (a ray) to flow from the negatively charged electrode (the cathode) to the positively charged electrode (the anode). The ray is detected when it hits a painted phosphor material at the far end of the tube and the phosphors spark or emit light.

2022: The International Year of Glass

Since 1959, the General Assembly of the United Nations has been designating years to acknowledge fields of international endeavor and the importance of their contributions to global society. As the International Year of Glass, 2022 provides a stage to celebrate one of the world's most transformational and ancient materials.

From early obsidian tools to revolutionary advancements in modern science and technology, glass has been a trusted tool and commodity for centuries, shaping cultures on almost every continent. Glass has transformed and illuminated the world we live in, making our lives easier, safer, quicker and better; and it has made for a more colorful world too. **To get in on the celebration, the Science Center will display different glass objects from our Collections each month during 2022!**



Check out these artifacts from the Saint Louis Science Center Collections, all of which were donated by the St. Louis Society for Medical and Scientific Education.

Cathode X-Ray Tube

Cold cathode vacuum tube with copper anode
Victor X-Ray Corporation, ca. 1910

Glass X-Ray Plate

Shrapnel penetrating the front of a skull
Taken by Captain Edwin Ernst at Base Hospital 21
Rouen, France, ca. 1918

Glass X-Ray Plate

Shrapnel injury to shoulder joint
Taken by Captain Edwin Ernst at Base Hospital 21
Rouen, France, ca. 1918

Science Comes to Life at Energy Stage



Stop by Energy Stage on the Lower Level to catch a thrilling STEAM Demonstration that brings science to life. STEAM Performances at Energy Stage happen daily and are free for everyone. Visit slsc.org/energy-stage for more information and show schedules.



Our Changing Earth

For guests who've seen Our Changing Earth at Energy Stage, now's a perfect time to come back and see this popular demonstration in its newest form. Audiences can expect a look at the underlying science of climate change, a topic highly relevant to our daily lives.

"As climate change progresses," says John Nahon, manager of Energy Stage and earth science, "it is important to understand how human activity is changing our planet's atmosphere. In this demonstration focused on physics, our educators will shed some (infrared) light on these processes."



Science on Ice

In this literally cool Energy Stage show, discover the chemistry and physics inside hockey's favorite form of water—ice! Grab a seat at the Energy Stage to see why ice is slippery and discover how factors like temperature can affect the way hockey players experience the game. Then, check out our latest special exhibition, *HOCKEY: Faster Than Ever!* (Turn to page 18 to learn more.)

McDonnell Planetarium



SUMMER ASTRONOMY DATES

JUNE 21
Summer Solstice

Summer is here! The Summer Solstice on June 21 marks the start of astronomical summer in the Northern Hemisphere and the Sun's highest position in the sky at local noon. After this date, the Sun will get lower in the sky and our days will grow shorter.

JULY 28-29
Delta Aquarids Meteor Shower Peak

The Delta Aquarid meteor shower is active each year from mid-July through late August. While best viewed in the Southern Hemisphere, the new moon in 2022 means it may be easier to spot "shooting stars" from this meteor shower in St. Louis.

AUGUST 12-13
Perseids Meteor Shower Peak

The annual Perseid meteor shower is usually one of the year's best, but a nearly full moon is likely to spoil the show in 2022. For best viewing, look towards the northeast after midnight during the peak.



Air Quality and the Ozone Garden

Ever noticed the Air Quality Sign on the bridge over I-64/Highway 40? Did you wonder what it measures and what you can do about it?

The American Lung Association leads the Clean Air Partnership, coordinating the community public education campaign and forecasting program. They also partner with the Science Center on the overpass sign and air quality forecasts to reduce air pollution and promote clean air.

The Air Quality Index (AQI) measures five pollutants and is rated from 0 to 500. The levels have corresponding colors—green is good, red means unhealthy and maroon is the highest level of concern. The higher the AQI, the greater the level of air pollution and the greater the health concern.

One of the pollutants the Air Quality Index measures is ground level ozone. But what is ozone?

Very little “bad” ozone occurs naturally. “Bad” ozone doesn’t come from a tailpipe, but instead is formed in our atmosphere when volatile organic compounds (VOC) and nitrogen oxides (NOx) react to light on sunny days. Heat can speed up these reactions, but it is primarily light that catalyzes them. VOC and NOx are produced by human activities, including the burning of fossil fuels.

The GROW Gallery contains a small Ozone Garden where you can learn more about ozone and how you can play a role in decreasing ozone levels. You can also learn how ozone can impact our crops.

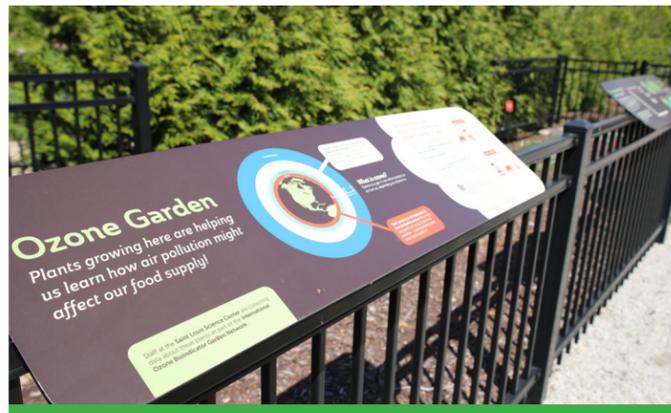
So what can you do when you see a poor air quality forecast?

Check out the list below, and let’s all do our part.

- + Help to decrease air pollution, including ozone, by reducing the use of fossil fuels like oil and natural gas.
- + Drive less often, walk, bike, and use public transportation when you can, and even utilize electric-powered lawn tools.
- + Work from home whenever possible.
- + Fill your fuel tank and mow your lawn in the evenings when light levels are lower.
- + Choose products (glues, sprays, paints) that do not contain or have reduced amounts of volatile organic compounds.



Daily AQI Color	Levels of Concern	Value of Index	Description of Air Quality
Green	Good	0-50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51-100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 & higher	Health warning of emergency conditions: everyone is more likely to be affected.



OUR NEWEST INTERACTIVE

Two-Player Pinball

Two-Player Pinball is Makerspace’s newest interactive! Any guest can play against an opponent and change the layout of the 3D printed bumpers.

This interactive is the brainchild of the Makerspace and Exhibits teams. The idea originated with Interactive Exhibit Developer Chris Lucas.

Makerspace manager Trent Smith explains, “Early on, we conceived of the machine relying on gravity and force generated by the guests to work. But through creative problem solving and iterating, we landed on a powered exhibit, with see-through panels and magnetic 3D-printed bumpers. So we changed from a mostly human-powered machine to one that relies more heavily on technology.”

“Another cool thing about this exhibit,” Smith adds, “is that the 3D printed bumpers will be designed by our guests.”

In our 3D Design Workshop, our Makerspace team will instruct guests in how to use a 3D design program called Tinkercad. Although guests will not be able to print the designs themselves, all designs will be saved in a print queue for later use.

Would you like to learn how to design a bumper that gets used in the machine? Come to the Makerspace Classroom and learn how. Guests may even be treated to a 3D printing demo!

3D Design Workshops will take place all summer from 2:00–4:00pm in the Makerspace Classroom. All workshops are first come, first served. Space and availability are limited. Please visit slsc.org/makerspace to learn more about the Makerspace!

FEATURED FOSSIL:



Juvenile Hadrosaur Footprint

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!

Pictured here is a juvenile hadrosaur (duck-billed dinosaur) footprint discovered in Montana in 2013. Archaeologists had searched this area for 160 years and found only one other footprint, making this a rare find indeed. This young hadrosaur stepped on the sandy shore of a shallow stream about 66 million years ago.

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

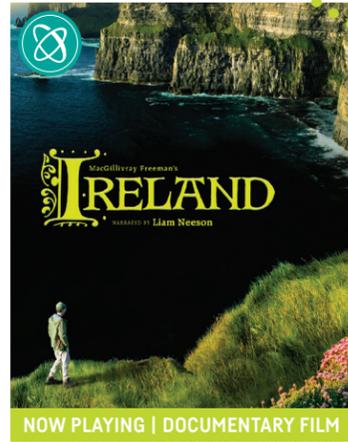
Now Playing at the OMNIMAX® Theater



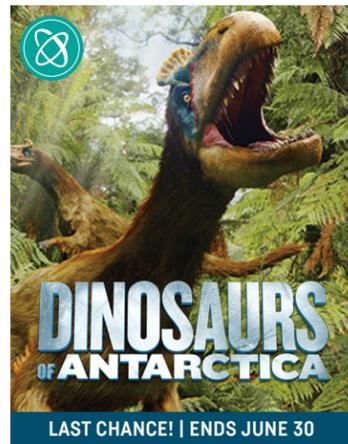
OPENS JULY 1 | DOCUMENTARY FILM

Explore some of the world's most remote and beautiful caves with *Ancient Caves*, a new film designed for the IMAX® Dome screen, directed by Emmy Award®-winning underwater cinematographer and New England native Jonathan Bird and narrated by Emmy Award®-winning actor Bryan Cranston. Science and adventure mix as the film shows scientists looking to better understand Earth's climate history by studying ancient cave formations in the world's most hidden realms.

Paleoclimatologist Dr. Gina Moseley and her team of cave explorers travel the world exploring vast underground worlds in search of stalagmite samples—geologic "fingerprints"—that reveal clues about the planet's climate history. Their quest leads them to some of the world's most remote caves, both above and below the water, in France, Iceland, the Bahamas, the United States, and Mexico's Yucatan Peninsula, where they study how rapidly Earth's climate can change and how it has affected human civilization.



Journey to a magical land of stunning natural wonders, ancient clifftop marvels and a rich, cultural heritage in the new film *Ireland*. Follow Irish writer Manchán Magan and four Irish teens on a cross-country adventure as they explore the island of Ireland's fascinating history and wild, natural beauty and reconnect with their Irish heritage. Narrated by Liam Neeson.



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. Welcome to the lost prehistoric world of Gondwana. Welcome to Antarctica.



NOW OPEN | DOCUMENTARY FILM

Wings Over Water, narrated by Michael Keaton, tells the compelling story of three amazing bird species—the Sandhill Crane, the Yellow Warbler and the Mallard Duck—with extraordinary footage of their fascinating behaviors. All of them depend on the wetlands for their survival.

FEATURE FILMS AT THE OMNIMAX®



Jurassic World: Dominion
OPENS FRIDAY, JUNE 10

SPECIAL EXHIBITION | LIMITED TIME



HOCKEY

FASTER THAN EVER

If you've ever watched a St. Louis Blues game and said, "Wow! That goalie stopped that puck so fast! I wonder if I could do that?" then come find out for yourself at our newest special exhibition, *HOCKEY: Faster Than Ever*. It's an exhibition so new, the Saint Louis Science Center is only the second location to host it.



Supported by

An exhibition produced and toured internationally by Flying Fish in collaboration with the Montreal Science Centre, supported by the NHL and the NHLPA.

The exhibition explores the European and Native American influences in the history of ice hockey, and shows that hockey was never just for men. In fact, did you know that three St. Louis women have played on the Olympic hockey team?

You'll see the ways that equipment changed throughout the decades and be able to compare the original equipment to today's; plus, you'll learn how hockey works, from the basic rules to what the referee's calls mean. An enormous hockey rink contains the exhibition's interactive displays, where you can grab a hockey stick and apply the science concepts you've learned. With cameras, lights, a Zamboni and a Jumbotron creating an immersive and authentic feel, you'll be taking selfies in the rink like you've been playing hockey your whole life.

"Even if you're not a hockey fan," says Managing Director of Visitor Services Jackie Mollet, "you'll get a much better appreciation for it."

Of course St. Louis is known for its hockey fans, so it should go without saying that some of those fans work here at the Science Center. That means it was a special treat for the team members who installed the exhibition, some of whom are fans and collectors themselves.

St. Louis has its own long tradition of hockey history, and as a result the Science Center has been able to get some fantastic pieces on loan from the collection of the Plager family (three Plager brothers, Bob, Bill and Barclay, all played for the Blues). Some of the loaned items are fond remembrances of the beloved **St. Louis Arena**, where the Blues played until 1994 and which was demolished in 1999. Other items on loan come from the Blues themselves, including ten hockey sticks used in the Stanley Cup finals.

It's not just a hockey exhibit—it's a sport science exhibit. "Even super fans will learn something new," says Neville Crenshaw, manager of special exhibitions and featured experiences.

Not only does this exhibition focus on the history of hockey, it also brings in some of the medical advances such as orthopedic care and sport science that have affected play in more recent years. These advances are medical science we use in our everyday lives—and so do the players on the St. Louis Blues and St. Louis Cardinals teams!

HOCKEY: Faster Than Ever will be available through Labor Day weekend. Please visit slsc.org/hockey to learn more. Science Center members can call 314.289.4424 to reserve discounted member tickets.

"Tichnor Quality Views," Reg. U. S. Pat. Off. Made Only by Tichnor Bros., Inc., Boston, Mass. - Boston Public Library Tichnor Brothers collection #63215

Public Domain

File:The Arena. St. Louis. Mo (63215).jpg

Created: between circa 1930 and circa 1945 date QS:P,+1950-00-00T00:00:00Z/7,P1319,+1930-00-00T00:00:00Z/9,P1326,+1945-00-00T00:00:00Z/9,P1480,Q5727902



FIRST FRIDAY

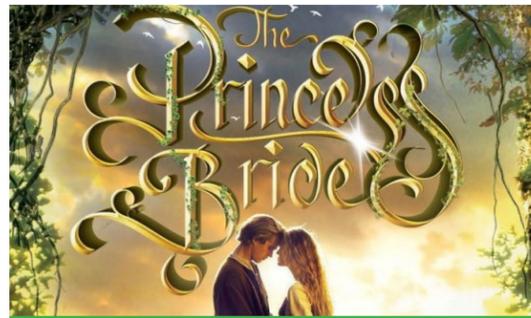
All First Friday events will take place from 5:00pm–9:00pm.

Visit slsc.org/first-fridays for updates and schedules.



JUNE 3 Stranger Things

Turn your world Upside Down at Stranger Things First Friday. Learn about the possibility of other dimensions, explore the Cold War history of science experiments and enjoy a game of Dungeons and Dragons with your friends. Compete in a building-wide game that takes you to the Upside Down and back again.



AUGUST 5 The Princess Bride

"As you wish!" Join us on August 5 for an enchanted evening as we dive into The Princess Bride. Explore the science behind poisons and potions, the magic of storytelling, and what it means to be in love. End the evening with a free screening of the beloved classic in the OMNIMAX® theater.

SciFest: Play & Creativity Expo!

SATURDAY, AUGUST 13, 2022 | 9:30AM-5:30PM

Join us for a free, all-day event showcasing how STEAM concepts, innovation, play and creativity all go together! Meet, work and play alongside some of the most innovative artists, tinkerers, entrepreneurs, STEAM experts and creative types in the St. Louis region and beyond. Get involved and engage your own creativity and bright ideas.

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

SciFest

SATURDAY, JUNE 4

Green Living Festival

Pop-Up in GROW

Our friends at the Missouri Botanical Garden are bringing their annual Green Living Festival out into the St. Louis community with a series of pop-up events during a "Summer of Sustainability" at their fellow ZMD (Zoo Museum District) institutions, including the Science Center.

The GROW Gallery's pop-up event is the first in the series and will include free workshops, exhibitors, tours and family-friendly activities focusing on energy efficiency, naturescaping, and personal and planet wellness. Join us from 10:00am–5:00pm on June 4!

Learn more about all five Festival pop-ups at mobot.org/greenlivingfest or discover more about our GROW Gallery at slsc.org/grow.



PRESENTED BY:
Ameren

SAVE THE DATE



Laser Light Shows Return This Summer

Save the date for laser light shows this July! From July 8–17, we will be bringing music back to summer evenings at the McDonnell Planetarium.

Laser shows at the Planetarium allow you to explore music in a whole new light. These live performances fuse popular music, real-time laser artwork, immersive 360-degree lighting and 3D atmospheric effects to bring your favorite music to life like you have never experienced it before!

Tickets for the summer laser light shows will go on sale June 16 and are \$9.95 for members and \$10.95 for nonmembers.



SAINT LOUIS SCIENCE CENTER
Esports

Girls Who Game



This March, the Saint Louis Science Center welcomed a group of female gamers from Columbia, MO.

Under the direction of individuals from Columbia College in Columbia, MO, the Girls Who Game organization includes many female gamers who are excited about the esports industry and the various career opportunities it offers. The organization offers students from the Columbia, MO area a chance to learn and grow skills pertinent to gaming, including coding, PC building and game design.

“The day’s programming included an overview of production and streaming techniques used in the esports industry on platforms such as Twitch, YouTube Gaming and Facebook Gaming,” says Science Center Director of Guest Services Doug Stanze.

In addition to educational discussions focused on streaming, the gamers were given the opportunity to have some fun and try a variety of different games. The final session of the day included a private presentation from female staff at RIOT Games. One of the world’s most popular video game developers, RIOT is well known for games such as Science Center esports offerings League of Legends and Valorant.

“Members of the RIOT organization were on hand to discuss their career pathways and the roles that they play in creating a more inclusive industry for female gamers and game developers,” Stanze adds. “The Saint Louis Science Center is extremely thankful to Bridgette Horack from RIOT Games for providing this opportunity to these students.”

The Science Center looks forward to partnering with Girls Who Game and RIOT Games on future projects and community programming.

To learn more about Girls Who Game, visit www.ccis.edu/admissions/visit/girls-who-game.

FOUNDING PARTNERS:



Esports XP Sessions Continue Following Successful Launch

After a successful launch of the new, free esports XP Sessions in the spring, the Science Center is excited to continue offering them into the summer.

“These exciting additions to our free play opportunities create accessible opportunities for our community to learn more about the games they love and the industry that surrounds them,” explains Director of Guest Services Doug Stanze.

Participants ages 7 and up will learn about some of the most important topics in esports: PC Building, Casting Basics, Streaming Basics and Game Design in 45- to 60-minute sessions that are bite-sized versions of the longer, paid Esports Enrichment Programs also available through the esports program.

Free tickets are available onsite and are only required for child participants; parents are also encouraged to participate.

Visit slsc.org/esports to learn more about XP Sessions, Enrichment Programs and more offerings from our esports team.

OFFICIAL SPONSORS:



The Saint Louis Science Center is excited to partner with the University of Health Sciences and Pharmacy (UHSP) in St. Louis on a summer esports camp series!

These weeklong experiences will bring 12- to 18-year-old gamers in the St. Louis region together with STEAM professionals in the esports, medical and technology industries from around the country, offering them a chance to experience a collegiate esports program.

From Monday through Thursday, campers visit the UHSP campus, where they learn about various careers, ask questions of local gamers and industry professionals and try new games in the UHSP Esports Arena. Camp training sessions are hands-on and deal with topics such as health and wellness as well as PC building, streaming and casting.

Campers will get to experience a variety of game titles throughout the week, and Friday will be a special opportunity for campers to experience some of the best the Saint Louis Science Center has to offer: an OMNIMAX® Theater film, a McDonnell Planetarium star show and a live STEAM Demonstration at Energy Stage. The final day will include lunch and end with a competition in the Science Center’s innovative gaming arena, featuring one of four popular games.

Camps run from June 13–17 and July 11–15 from 9:00am–4:00pm each day. Cost per camper is \$250 and each session is limited to 30 spots. To register your camper, visit slsc.org/esports.

Esports Camp Supports Esports Program



LocalHost, a gaming space in Brentwood, MO, is hosting esports camps this summer. The weeklong camps begin on June 20 or 27, July 18, or August 1, 8 or 15. Registering with the code **NSGSLSC22** will save campers \$50 and help support for the Science Center’s Esports Program.

REGISTER AT:

www.usportscamps.com/welcome/localhost



SciFest

SciFest: Engineering Expo Celebrates the Science and Creativity of Engineering

Showcasing engineers and the creativity that engineering is all about, more than 200 partners and presenters gathered at the Science Center to celebrate Engineers Week with SciFest: Engineering Expo. With activities, demonstrations, presentations and more, nearly every corner of the Science Center was packed with real life professionals working in engineering fields.

At activity tables across the Science Center, STEAM partners like Washington University’s Law Lab demonstrated how technology allows scientists to see molecules in cells and other “invisible” objects. (Hear more from Matt Lew, assistant professor of electrical and systems engineering at Washington University in St. Louis, in Science Today on page 6.) In GROW, Bayer Crop Science demonstrated how to build a “brushbot,” a simple robot powered by a small vibrating motor, and The Boeing Company was on hand to let guests experience flight simulators and other activities.

This year, Engineering Expo was excited to have a number of groups and STEAM professionals representing the diversity of the engineering community. The Society of Hispanic Professional Engineers offered building and engineering activities, and the Gateway Metro Professional Chapter of the National Society of Black Engineers demonstrated to guests of all ages how circuits work and how to build them. And throughout the Science Center it was hard to miss just how many of the engineering and STEAM professionals present were women—a group often underrepresented in STEAM fields like engineering.



Read more about this year’s SciFest: Engineering Expo at slsc.org/newscience.

THE CAROL B. AND JEROME T.

LOEB PRIZE

FOR EXCELLENCE IN TEACHING SCIENCE AND MATHEMATICS



2022 Loeb Prize winner Tanya Bergantz
Selvidge Middle School

2022 Loeb Prize

For 27 years, The Loeb Prize has honored outstanding science and math educators in the St. Louis area who demonstrate a passion to inspire learning.

Tanya Bergantz, from Selvidge Middle School, was awarded the Carol B. and Jerome T. Loeb Prize for Excellence in Teaching Science and Mathematics at an event celebrating the finalists at the McDonnell Planetarium on May 12th.

This year's event also honored J. Arthur Wilde, who teaches at Bayless High School, as the second place honoree. Other finalists included Andrew Davis from Saint Louis Priory School; Amie Grage from Hancock Place High School; and Sherri Johanns from Andrews Academy-Creve Coeur. All finalists received cash awards.

"This year's nominated teachers are an extraordinary group of highly qualified and dedicated educators. They are masters of their subjects, technologically savvy, innovative in their classrooms, and consummate professionals. It is most rewarding to be able to recognize these outstanding teachers of tomorrow's STEM leaders," said Carol Loeb, a math teacher for 59 years, who along with her husband, the late Jerome T. Loeb, established the Loeb Prize in 1995 in partnership with the Saint Louis Science Center. Carol Loeb also serves on the Saint Louis Science Center's Board of Trustees.

"We are proud of the longstanding partnership with the Loeb Family in recognizing and rewarding outstanding teachers dedicated to STEM education," said Todd Basteen, president and CEO of the Saint Louis Science Center. "The Loeb Prize is one of the many ways we honor educators who share the mission of the Saint Louis Science Center – to ignite and sustain a lifelong interest in science and technology."



Welcome Home, Community Partners!

A Measurable Impact

Last year, collaborations with community partner organizations helped the YES Program reach **800** St. Louis community members through Pop-Up Science; reach **858** people through Summertime Science; and distribute **2,400** STEAM activity kits.

In March the Science Center's Community Partners meeting returned to the Taylor Community Science Resource Center, home of the Youth Exploring Science (YES) Program. Things may have looked different with masks and social distancing, but after two years of virtual meetings it was hard to miss that the partners—and the Science Center's Community Science team—were happy to see each other's faces again.

Community Partners serve as an important part of the YES Program by helping to connect and collaborate with community organizations who share a commitment to equity in STEAM education, helping share new ideas and creating opportunities for the YES Teens to deliver impactful STEAM education experiences in communities typically underserved in science and technology learning.

In addition to hearing about upcoming STEAM activities like summertime field trip opportunities and the return of the Science Center's Jr. Intern Program, the partners also received a commemorative coin with the message "Welcome Home, Community Partners!" Before breaking for lunch and a networking session, the partners got to see an assortment of science demonstrations from John Nahon, the Science Center's Manager of Energy Stage and Earth Science, whose elephant toothpaste and electricity demos provided the perfect complement to the energy already in the air.



SAINT LOUIS SCIENCE CENTER

Launches ROAR Esports League

The Saint Louis Science Center's Esports Program is excited to launch a brand new, competitive gaming league in partnership with the Gateway Region YMCA.

The team is named the Saint Louis Science Center ROAR and provides an educational opportunity and competitive play twice a week for eight weeks; the first league opportunities began in April and ended in May.

Participants play against other gamers on local and national platforms in three games: Fortnite, Super Smash Bros. and Rocket League. Each team session is eight weeks long and includes onsite education, gaming practice, virtual competitions, a custom ROAR team jersey and trophy, plus 4 OMNIMAX® vouchers and 4 Planetarium vouchers.

Director of Guest Services Doug Stanze explained, "We hope to transition this into further league and competitive play opportunities, including chances for high schoolers to get involved, in the summer."

Teams are made up of students ages 9-13. On Mondays the team members will meet onsite for education and practice; Wednesdays and Thursdays will be virtual competition days. During virtual competitions, Science Center staff will be available to assist with any technological issues that arise.

Competitors must have their own equipment, a reliable internet connection and updated versions of the games mentioned above, as well as an account on Discord. Cost for enrollment is \$99 for nonmembers and \$75 for members.

Anyone interested in enrolling their student in the Saint Louis ROAR Esports League should register over the phone by calling 314.289.4424. Contact esports@slsc.org with any questions.





Photo Credit: stlhighschoolsports.com

From the Basketball Court to the Community, Monet Witherspoon is Scoring Points and Sparking Curiosity

For Monet Witherspoon, Saturday, March 19 wasn't just a cause for celebration, it was an historic moment. As a sophomore guard for John Burroughs High School's girls' basketball team, the Bombers, Monet helped secure a 54-46 win over St. Joseph Benton in the Class 4 state championship game with 16 points and four rebounds—leading to a first-ever state championship win for the Bombers.

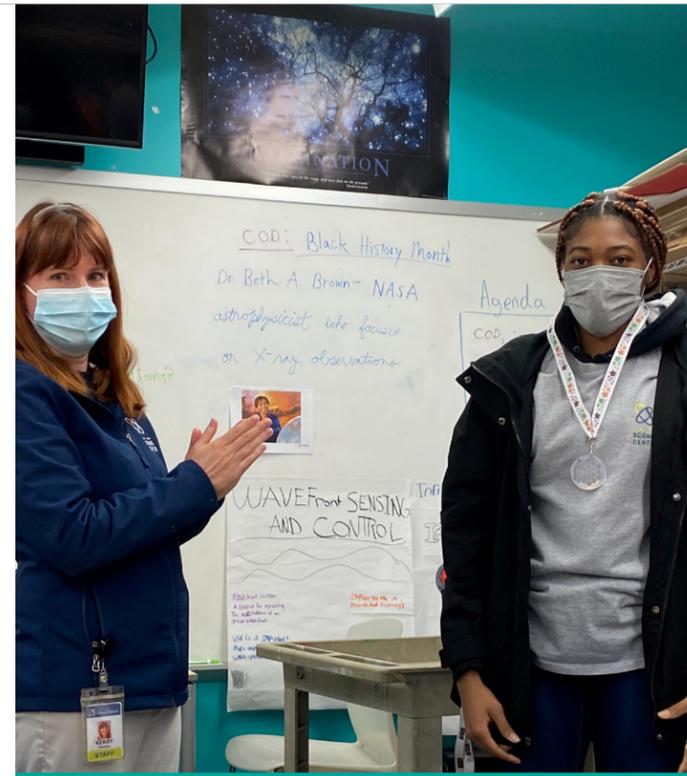
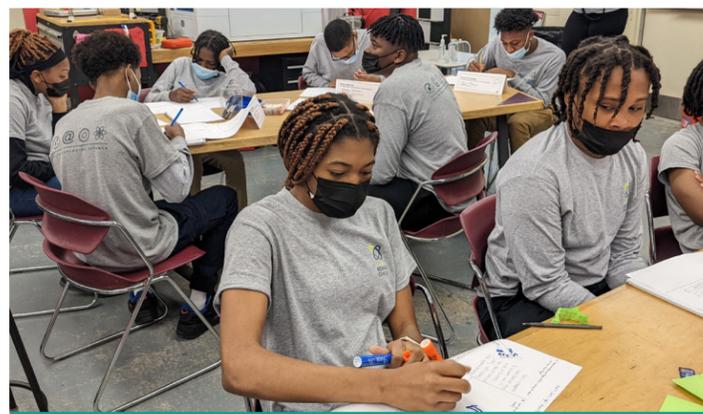
"I've been playing basketball since first grade," Monet says, but when asked if she's always had a knack for scoring points on the court, she laughs. "I've always played with the best players, but it was always up to me to put in the extra work outside of practice." Recently that's meant running two miles a few days of the week, starting strength and agility training, and sometimes getting up at 5:00am to hone her skills on the court—all while making sure she has enough time for homework.

Also on Monet's impressive list of extracurricular activities is the Science Center's Youth Exploring Science (YES) Program. Now in

her second year in YES, Monet is used to rising to meet challenges and finding the growth opportunities that come with them.

Despite being part of the YES Program's Aerospace component, Monet says that aerospace hadn't always been an interest of hers, but as someone who likes to learn, she found that the YES Program definitely helped it become one.

One standout example? When Monet and the other teens in the Aerospace component had the opportunity to learn about the fundamentals of flight, train on flight simulators, and then take the controls of a real airplane with an instructor above the St. Charles Airport. "I'd never done that before," Monet says. "I got to learn everything about the plane, like the physics [of flying], aerodynamics, and how to actually fly a plane."



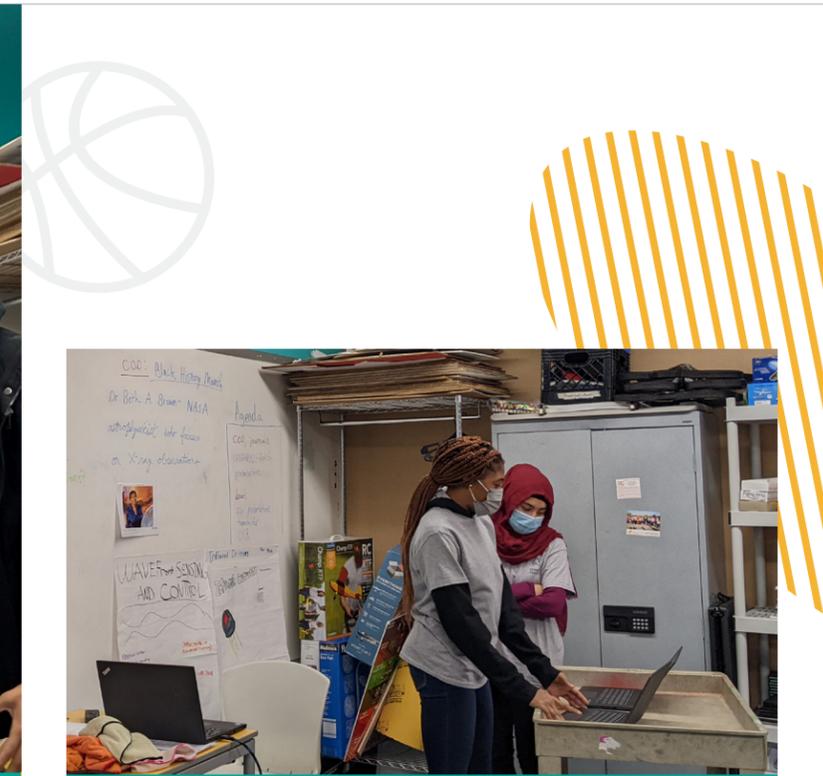
But Monet's also enjoyed getting to work with kids in the St. Louis community. "Teaching kids, learning how different kids learn in different ways, making lesson plans—I like those things about the YES Program," she says.

"YES has also helped grow my patience," she adds, "and it's given me an appreciation for my teachers."

Monet points to recent activities exploring the various ways that kids learn and how to help teach them—skills that will come into play as part of the YES Program's new STEMtastic Camp, where Monet and the other teens in the program's Aerospace and Engineering components will help teach science and technology activities to kids this summer.

The YES Program has also given Monet opportunities to take what she's learned about working with children and apply her own creative thinking to engaging kids in hands-on STEAM learning.

In a recent lesson focused on adaptations and how animals change to better fit their environment, Monet developed an activity guiding kids through creating their own exoplanet—a planet outside the solar system—and thinking of an animal that would have had to adapt to its environment in order to live there: for example, a creature that's adapted to an icy planet with fur for warmth and talons for navigating the frozen terrain.



Adaptation is a theme—and a skill—apt for someone like Monet, both for her experience in the YES Program as well as on the basketball court.

In YES, she explains, sometimes you're presented with situations where you have to deal with the unexpected. "You're with kids, and kids can be unpredictable. You don't know what questions they're going to ask or what they're going to do," she says. "So it's experience that helps you, doing something over and over again. And learning from mistakes helps you fix things and achieve a better outcome."

On the basketball court it's the same thing, Monet says. Every previous game, whether they were wins or losses, helped bring her and her team to that ultimate moment of the state championship.

"You're presented with challenges and unpredictable things, but you use those roadblocks. You get around them. You go through them. You use them to get to your final destination."

For Monet, sometimes that destination is scoring on the court in the final moments before the buzzer. Other times it's sparking a child's curiosity for STEAM—a curiosity that can last a lifetime.

Learn more about the Youth Exploring Science Program at slsc.org/yes. Make a gift to the YES Program at donations.slsc.org/yes.



Saint Louis Science Center Receives Boeing Grant to Support the YES STEMtastic Camp

The Saint Louis Science Center is thrilled to announce a generous **\$100,000 grant award** from The Boeing Company to help fund our nationally recognized Youth Exploring Science (YES) Program and YES's new STEMtastic Camp program this summer.

“We are grateful for the funding from Boeing Global the Engagement Grant and the significant support it will provide in bringing innovative STEM learning to underserved students in our community,” says Siinya Williams, senior director of Community Science for the Science Center. **“Programs like these are fundamental to the Science Center’s mission to ignite and sustain lifelong science and technology learning in our community.”**

Boeing’s support will help sustain the Science Center’s impactful STEM educational programs, which bring engaging, project-based science and technology learning opportunities to youth with limited access to high-quality, outside-of-school learning experiences. The YES Program helps prepare underserved high school students for graduation, college and future careers through informal, hands-on STEM programs and experiences.

Funding will support the YES Program’s Aerospace and Engineering components—fields particularly important to the St. Louis community’s need for a well-educated and STEM-skilled workforce. These popular and impactful components—two of six components in the YES Program—bring a greater awareness of the rich and extensive history of aviation in St. Louis and the well-documented need for delivering technology-savvy college graduates and technicians to fill the workforce pipeline. The Boeing Global Engagement Grant will also support the YES Program’s STEMtastic

Camp, a program that will provide free STEM learning experiences for hundreds of underserved elementary school students attending summer school in the University City and Riverview Gardens school districts. Both districts are located in underserved communities, and both are Title 1 schools, making the STEMtastic Camp an important tool in encouraging diversity in STEM occupations and supporting STEM learning for young people from demographics that are historically underrepresented in science and technology fields.

This program builds upon a successful pilot of the program—also made possible by Boeing—in the University City school district during the summer of 2021, which reached approximately 240 community members.

In the program, YES Teens—50% of whom are female and the majority from underserved communities themselves—plan the curriculum and hands-on STEM activities, as well as lead the programming that demonstrates for these young learners just how much of their lives, interests and experiences connect with STEM. Students will utilize dynamic flight, space, computer and technology programming to participate in projects about space and flight, followed by later activities delving into coding, how computers are assembled and more.

The Science Center wishes to thank The Boeing Company once again for their generous support for the YES Program and for their help in making our mission possible.



The YES Teens Prepare for the STEMtastic Camp



Recently the teens in the YES Program’s Aerospace and Engineering components had the unique opportunity to receive training in inquiry-based teaching, classroom management and microaggressions towards people of color in STEAM as part of three professional development sessions in preparation for this summer’s new STEMtastic Camp.

In the first and second sessions, Heather Milo from Washington University’s Institute for School Partnership visited the Taylor Community Science Resource Center to lead the YES Teens in professional development sessions devoted to classroom management and inquiry-based teaching. Inquiry is a teaching method in which instructors use questions, problems and scenarios to help students actively engage with content through exploration and problem-solving. Students find their own solutions to real-world problems. As part of the session the teens created a plan for the first day with the kids to establish norms and get to know them.

For the third session the teens were joined by St. Louis’ Education Equity Center for a three-hour training session on microaggressions. Sherita Love led the teens in discussions about the importance of recognizing microaggressions—the verbal or nonverbal insults, snubs or slights driven by hostile or negative attitudes toward culturally marginalized groups including people of color and women in STEAM fields—and finding ways of dealing with them. The teens also participated in example scenarios they might encounter, an unfortunate reality that Kerry Stevison, manager of STEAM content for the Community Science department and manager of the YES Program’s Aerospace component, notes the teens are likely to face in their lives, both inside and out of the classroom.

But even after this summer’s STEMtastic Camp, the tools and skills the YES Teens have learned during these sessions are ones they’ll carry with them throughout the rest of their time in YES and beyond.

“Classroom management skills are a key takeaway for these sessions,” Stevison says, “but so is leading inquiry-based learning.” Alongside the professional development sessions, the teens have been learning the inquiry curriculum—focused on designing gliders—they’ll use for the STEMtastic Camp. “Inquiry is an excellent teaching strategy, especially for STEM topics, but it also teaches the teens to be persistent and to think both critically and creatively.”



**SUPPORT
MAKES OUR
MISSION
POSSIBLE**

Thank you!

Thank you to all of our donors and sponsors for your support and making our mission to ignite and sustain lifelong science and technology learning possible. We'd like to mention just a few of the recent grants and sponsorships that are making an impact on STEAM education through the mission of the Science Center.

Learn more about how your company or organization can get involved in our mission!
Visit slsc.org/corporate-giving.

\$25,000 Dana Brown CHARITABLE TRUST

FOR: YES Program
FROM: Dana Brown Charitable Trust
RECEIVED: February 26, 2022

\$5,000 *Laura J. Niles Foundation*

FOR: YES Program
FROM: Laura J. Niles Foundation
RECEIVED: March 16, 2022

\$25,000 BAYER

FOR: Annual Fund
FROM: Bayer
RECEIVED: March 22, 2022

\$2,000 BURNS & McDONNELL

FOR: Esports Program
FROM: Burns & McDonnell Foundation
RECEIVED: March 10, 2022

\$2,500 SSMHealth

FOR: Esports Program
FROM: SSM Health Physical Therapy
AWARDED: January 25, 2022

\$15,000 MISSOURI FARM BUREAU ILLINOIS FARM BUREAU
Farm. Family. Food.
GATEWAY COMMITTEE

FOR: GROW
FROM: Missouri & Illinois Farm Bureau Gateway Committee
PLEDGED: April 5, 2022



**SSM Health Physical Therapy
Sponsors the Science Center's
Esports Program**

The Science Center is proud to have SSM Health Physical Therapy as a sponsor of the Science Center's Esports program. This sponsorship will highlight SSM Health Physical Therapy's Esports health and wellness initiatives. Thirty-second videos exploring how SSM Health's physical therapies can benefit the health of gamers and esports enthusiasts will play at most esports events, including our new educational Esports XP sessions. SSM Health Physical therapists will have the opportunity to educate participants onsite at select XP sessions.

These free Esports XP sessions allow the next generation of gamers, and their guardians, to learn how gaming can boost creative thinking, teamwork, information gathering and technology fluency skills. Topics covered in these sessions include PC Building, Streaming Basics, Casting Basics and Game Design. The sessions are instructional with time built in for participants to explore games and play.

The Esports Program is excited to offer this unique opportunity and benefit to its participants and looks forward to a continued partnership with SSM Health Physical Therapy.

SPECIAL OFFER

**JOIN THE
2022 CARDINALS
KIDS CLUB**

The official club for Cardinals fans ages 13 and under.

2022 members receive exclusive Kids Club items, a ticket voucher, and access to members-only events throughout the season. **ALL FOR \$28 WITH THE SPECIAL DISCOUNT BELOW!**

**FOR MORE INFORMATION
AND TO JOIN NOW, VISIT
CARDINALS.COM/KIDSClub**

Enter promo code
STLSLSC22
to receive the
discounted price.



*Promo code is valid until 6/30/2022. Special discount is \$5 off a \$33 membership + S&H. *While supplies last.

WE'RE HIRING

**The Saint Louis Science Center
is currently hiring for several full
and part time positions!**

The Saint Louis Science Center is a team of educators, entertainers and science enthusiasts who work together to fulfill our mission to ignite and sustain lifelong science and technology learning.

**View our open positions and
apply at slsc.org/careers.**



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.

You can also send us an email if:

- Your email address has changed
- Your name is misspelled
- Your address is incorrect



Smithsonian Affiliate
Membership Program

**Give the gift of
year-round play.
Give the gift
of membership.**

Members receive these great benefits: FREE OMNIMAX® Theater documentary film and McDonnell Planetarium tickets | Discounted tickets to special exhibitions like *HOCKEY: Faster Than Ever* | Discounted OMNIMAX feature film tickets | In-person & virtual members-only events | First access to educational programming & STEAM experts | Discounts on dining & shopping | Quarterly *NewScience* member magazine | Free parking and much more

DISCOVER MORE: Members also receive reciprocal admission and benefits to over 300 ASTC museums.

Visit slsc.org/memberships to gift a membership today.

