All events are FREE and open to the public!

expect the unexpected!

expect the unexpected!
THANK YOU!
TO ALL OF OUR SPONSORS
The MSU Science Festival would like to thank all the generous sponsors who helped make this event possible!

Science!

Innovation!

Creativity!

Nobel!
It is a great honor to be part of this year’s science festival at Michigan State University. My first passion as a kid was magic. I loved watching magicians perform, and I aspired to become a magician myself someday—and I did. In fact, it is because of magic that I am especially excited to be back here in Michigan.

When I was 19, I was a finalist in a national competition for young magicians held in Colon. Among the other three finalists, one of them is now an eminent particle physicist at Oxford, and another continues to perform large scale illusions and once even made the NASA space shuttle disappear! What is it about magic and science that attracts the same audience? For me, they are both about solving mysteries:

• How does the magician do that trick?
• Why does this mathematical pattern seem to work?
• What is the simplest explanation for this biological or physical phenomenon?
• How can we make the impossible seem possible?

In science, mathematics, and magic, it takes logic, cleverness, and hard work to find solutions.

At this year’s festival you will discover the secrets revealed by fossils in the ground and stars in the sky, and how we learn through the games that we play and music we create. You will also see how you can get involved in science to help your community and understand our world, regardless of your age or education level. I look forward to sharing my mathematics and magic with you!

Mathemagically,

**Dr. Arthur Benjamin**
Professor of Mathematics
Harvey Mudd College

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Join Arthur Benjamin for his Mathmagical presentation on Sunday, April 19, for math like you’ve never experienced before!
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The Lansing State Journal Expo Arena!
Most hands-on Expo activities will be located in the halls of the BioMedical Physical Sciences building (BPS) and Chemistry building. Additional Expo activities will also be found in Abrams Planetarium, the Cyclotron, MSU Museum, Bug House, and Broad Museum. Expo activities will be open Saturday, April 18 and Sunday, April 19. See map on page 28, and a listing of Expo presentations on page 33.

Delta Dental’s Early Childhood Zone
Hands on activities for children 6 yrs and younger will be located in the Atrium of the Plant and Soil Sciences building (PSS), a 2 minute walk across the street from the LSJ Expo Zone. Activities will be open Saturday, April 18 and Sunday, April 19. See page 30 for full schedule.

Information Locations
Information tents will be located in two locations; one in Benefactors Plaza and one on the south side of Abrams Planetarium.

Information tables will be located in the Chemistry and BPS buildings. Information HQ will be located in BPS Rm 1300.

These locations will have attendants available to answer questions and provide program booklets, maps, and T-shirt sales information to visitors.

Transportation and Parking
Please see page 3 for details on parking and local buses.

Accessibility
All buildings where festival events take place are wheelchair accessible.

Restrooms
All buildings where festival events take place have restrooms available to the public.

Eating
There are several state-of-the-art cafeterias located around campus. Please see page 28 for map locations and hours. Meal purchase prices: children (ages 2–9 yrs) $4.99 plus tax for all meals; adults $5.99 plus tax for breakfast, and $9.49 plus tax for lunch and dinner.

Allergies
Dining halls offer a variety of options to meet special dietary needs. For more information visit eatatstate.com/faq/otherneeds.

Lost Children
Before starting out each day to enjoy the festival events, if you are bringing children please designate a location where you will meet if you
get separated. If you are a parent looking for your lost child, go to the Festival Headquarters, BPS Rm 1300 in the BPS building. If at an event on North campus please check in at the information tent in Benefactor’s Plaza.

**Registration for Events**
A small number of festival events require pre-registration due to limited seating and/or the need to prepare supplies in advance. To register for events that require pre-registration, please go to the Science Festival website, select Schedule, and navigate to the appropriate event: sciencefestival.msu.edu. If you do not pre-register and seats are full, you may not be able to attend.

You do not need to register each person in your group separately. You may indicate the total number in your group on one form.

**Age Recommendations**
Age ranges have been specified for each event. These are simply recommendations, except when noted as “required.”

**Donations**
If you would like to support the MSU Science Festival for next year, please visit the Science Festival website at sciencefestival.msu.edu.

**Media**
All media that come to the festival should report to the Information tent located at Benefactors Plaza. You can also contact Carla Hills directly at hillsc@msu.edu or (517) 355-5059.

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**ABOUT TRANSPORTATION**

**PLEASE NOTE:** The Science Festival website will have the most up to date information. Please visit the website at: sciencefestival.msu.edu

Parking on the MSU campus during the day on weekdays is tricky. We encourage visitors to take a bus or, weather permitting, travel by bicycle. MSU’s Parking Office is waiving bicycle registration and will not impound unregistered bicycles during the week of the festival as long as bicycles are parked and locked to a bicycle rack and in working order.

**Bus Service**
Need transportation to the festival activities? CATA will provide **free rides** to those traveling to the MSU Science Festival **between 5 PM and 10 PM April 15–17 and between 9 AM and 5 PM, April 18 and 19.** Just board any CATA route in service during these periods and tell the bus operator you are going to or returning from the festival. No ticket is needed for this free service. Routes 1, 20, and 22–26 are the
primary routes that travel to the MSU campus. Routes 22 and 23 do not operate on Sunday.

Thank you CATA!

Parking

Weekdays Before 6 PM
Festival visitors may park in the visitor pay-to-exit lots (cash only) and meters (note hours of operation – ramp meters are U.S. coin operated only; most others accept credit cards and U.S. coins). In addition, during the week of the festival, Lots 89 and 91 have been designated free for festival visitors.

Go to maps.msu.edu or the enclosed map on page 28 for further detail on lot numbers and locations. Due to heavy traffic and use of campus meters and pay-to-exit lots on central campus, the areas below are more likely to have available parking:

• Lot 89 – northwest corner of Farm Lane and Mt. Hope Road
• Lot 91 – northwest corner of Service and Hagadorn Roads
• Visitor pay-to-exit lots: 62W, 79, 100 and Ramp 3 (Wharton Center off Shaw Lane) – (all cash only at 80 cents per ½ hour or portion thereof)
• Meters in Ramp 5 – at Trowbridge and Red Cedar Roads
• Meters in Ramp 6 – off Grand River Avenue, west of Olin Health Center

Weekdays After 6 PM and Weekends
We have consolidated evening events in buildings with easy access to parking ramps and lots. You may park in general spaces or at meters in the following parking ramps after 6:00 PM on weekdays or during the weekend. Park in pay-to-exit lots (there is no charge to park in them on weekends IF there are no special events).

Consider the following for April 15 and 16 evening events:

• Ramp 1 (Shaw Lane Ramp)
• Lot 46 (south of BPS, near Plant Biology Labs)

Consider the Kellogg Center’s parking ramp for our keynote presentation on the evening of April 17. There is a fee.

Event parking for April 18 and 19 is best determined by location of the events you attend. Consider the following locations:

• Ramp 1 (Shaw Lane Ramp)
• Lot 41 (west of the Planetarium)
• Lot 46 (south of BPS, near Plant Biology Labs)
• Ramp 5 (Trowbridge Road Ramp)
• Ramp 6 (Grand River Avenue Ramp)
• Lot 7 (by Natural Science and Old Horticulture buildings)

Please note:
There may be spaces within these lots that are designated for other use (i.e. leased spaces, university vehicle spaces). Do not park in them as a violation may be written and you may be towed. Park only as described above.

Concurrent special events on campus may require a fee to enter a lot (one is currently scheduled during the festival at the Breslin Center). Handicap spaces require a valid placard or plate.

If you have questions about accessible parking, please contact:

MSU Parking Office
(517) 355-8440
Monday–Friday, 7:30 AM–4:45 PM
discover something new

PLEASE NOTE: The Science Festival website will have the most up to date information. Please visit the website at: sciencefestival.msu.edu/schedule

The Applied Science Behind Producing Exhibitions
Brian Kirschensteiner, Preparator (The Eli and Edythe Broad Art Museum)

**Time:** 5:00 PM – 8:00 PM  
**Location:** The Eli and Edythe Broad Art Museum

Come join us to get a glimpse of some of the science, tools, and methods used to produce exhibitions at the Eli and Edythe Broad Art Museum.

“Boot” Camp
Department of Radiology: Jerrod Braman, Research Assistant 1; Feng Wei, Assistant Professor; Roger Haut, University Distinguished Professor

**Time:** 6:30 PM – 7:15 PM  
**Location:** East Fee Hall, Room A423

Explore the science of footwear! Learn about plantar pressure and thermal and humidity measures that relate to comfort through demonstrations.

Event Type  
Exhibit or Open house

Scientific Discipline  
Arts, Culture, and Design

Recommended Age Range  
All ages (kids to adults)
From Cholera to Ebola
Epidemiology and Popular Culture
Stephen Rachman, Associate Professor (English)

**Time:** 6:30 PM – 7:15 PM  
**Location:** Biomedical Physical Sciences Building, Room 1415  
This talk will examine the public image of epidemiology in popular culture (books, films, TV) over the last decade.

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Exotic Animals
Nikki Mitchell, Education Coordinator (Preuss Pets)

**Time:** 6:30 PM – 7:15 PM  
**Location:** Preuss Pets, 1127 N. Cedar St., Lansing  
A presentation on exotic animals and their habitats.

---

Fun with Fisheries and Wildlife
Local Animal Species
Sarah Plantrich, Undergraduate Student (Fisheries and Wildlife)

**Time:** 6:30 PM – 7:15 PM  
**Location:** Natural Resources Building, Polar Bear Room  
Have you ever wondered what animals might be living in your backyard? Come to “Fun with Fisheries and Wildlife” to find out!

---

Looking at Science Through New Lenses
How Parents and Teachers Can Cultivate Curiosity, Creativity, and Excitement
Deborah Peek-Brown, Education Outreach Specialist (CREATE for STEM Institute)

**Time:** 6:30 PM – 7:15 PM  
**Location:** Chemistry Building, Room 109  
What do geckos and stain resistant pants have in common? Learn how to cultivate curiosity and prepare our youth to explore advances in science.

---

PhotosynQ
A Global Plant and Environmental Health Initiative
Plant Research Laboratory: Geoff Rhodes, Research Technician; Greg Austic, Project Lead; Robert Zegarac; Sebastian Kuhlert, Research Associate; Dave Kramer, Principal Investigator

**Time:** 6:30 PM – 7:15 PM  
**Location:** Chemistry Building, Room 110  
Join the PhotosynQ team in collecting real world data to answer questions about plant health in the MSU gardens.
Stress Less with Mindfulness  
Begin with a Breath
MSU Extension Educators: Gail Innis; Suzanne Pish; Carolyn Penniman; Terry Clark-Jones; Holly Tiret

**Time:** 6:30 PM – 7:15 PM  
**Location:** Biomedical Physical Sciences Building, Room 1420 
Mindfulness gives you some techniques you can use to reduce your stress.

---

**History and Science of Archery**
Glen Bennett, MSU Archery Coach (Demmer Center)

**Time:** 6:30 PM – 8:30 PM  
**Location:** Demmer Center, 4830 E. Jolly Rd., Okemos 
The MSU Archery Team Coach and team members will lead a discussion on the history and science of archery.

---

**Bouncing Back from Mistakes in the Brain**
Hans Schroder, Doctoral Student (Psychology)

**Time:** 8:00 PM – 8:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1410 
Everybody makes mistakes. This presentation will discuss why some people are quick to bounce back, whereas others continue to feel stuck.

---

**Exotic Animals**
Nikki Mitchell, Education Coordinator (Preuss Pets)

**Time:** 8:00 PM – 8:45 PM  
**Location:** Preuss Pets, 1127 N. Cedar St., Lansing 
A presentation on exotic animals and their habitats.

---

**It’s All About Chemistry!**
Department of Chemistry: James Geiger, Associate Professor; Chrysoula Vasileiou, Academic Specialist

**Time:** 8:00 PM – 8:45 PM  
**Location:** Chemistry Building, Room 138 
A chemical demonstration full of colors and noises that will blow you away!
Stress Less with Mindfulness: Begin with a Breath
MSU Extension Educators: Gail Innis; Suzanne Pish; Carolyn Penniman; Terry Clark-Jones; Holly Tiret
**Time:** 8:00 PM – 8:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1420
Mindfulness gives you some techniques you can use to reduce your stress.

Traditional Ecological Knowledge, Science and Ethics
Kyle Whyte, Assistant Professor (Philosophy)  
**Time:** 8:00 PM – 8:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1415
Join Dr. Whyte as he discusses ethical issues involved in knowledge exchanges between indigenous peoples and scientists on climate change initiatives.

“Boot” Camp
Department of Radiology: Jerrod Braman, Research Assistant 1; Feng Wei, Assistant Professor; Roger Haut, University Distinguished Professor
**Time:** 6:30 PM – 7:15 PM  
**Location:** East Fee Hall, Room A423
Explore the science of footwear! Learn about plantar pressure and thermal and humidity measures that relate to comfort through demonstrations.

How the Brain Reads
Bethany Sussman (Communicative Sciences and Disorders)  
**Time:** 6:30 PM – 7:15 PM  
**Location:** Biomedical Physical Sciences Building, Room 1420
Reading is a complex visual, perceptual, cognitive, and linguistic skill. Discover how networks of regions all over the brain work together to read!
Michigan’s Literary Science
Karren Reish, Library Grants Coordinator (Michigan Department of Education – Library of Michigan); Edwina Murphy, Notable Books Coordinator (Michigan e-Library)

**Time:** 6:30 PM – 7:15 PM  
**Location:** Biomedical Physical Sciences Building, Room 1400


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The Magic of Chemistry
Joseph Ward, Coordinator of General Chemistry Laboratories (Chemistry)

**Time:** 6:30 PM – 7:15 PM  
**Location:** Chemistry Building, Room 138

Is it magic or chemistry? Come join us as we take you behind the curtain for a number of interesting, fun, and sometimes loud examples of chemistry.

---

Unexpected Science!
Gabe Ording, Director (Center for Integrative Studies in the General Sciences); Maria Iliopoulou, Outreach Specialist (Veterinary Medical Center); Mark Axelrod, Associate Professor (James Madison College); Sue Nichols, Assistant Director (Center for Systems Integration and Sustainability); Stephen Thomas, Assistant Professor (Integrative Biology)

**Time:** 7:00 PM – 8:30 PM  
**Location:** Biomedical Physical Sciences Building, Room 1415

Science is an integral part of our daily lives. Come discover the unexpected and creative pursuits with which science is inextricably connected.

---

Bouncing Back from Mistakes in the Brain
Hans Schroder, Doctoral Student (Psychology)

**Time:** 8:00 PM – 8:45 PM  
**Location:** Chemistry Building, Room 110

Everybody makes mistakes. This presentation will discuss why some people are quick to bounce back, whereas others continue to feel stuck.
**Michigan’s Literary Science**  
Karren Reish, Library Grants Coordinator (Michigan Department of Education – Library of Michigan); Edwina Murphy, Notable Books Coordinator (Michigan e-Library)  
**Time:** 8:00 PM – 8:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1400  

**Science, Fiction, and the Real Monsters of Our Imagination**  
Sarah Gibbons (Writing, Rhetoric and American Culture)  
**Time:** 8:00 PM – 8:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1410  
Come explore the relationship between literary monsters and scientific realities, and learn how science and fiction inspire each other!

**What You Think You Know and Why It Matters**  
Jason Moser, Assistant Professor (Psychology); Megan Fisher, Laboratory Manager (Psychology)  
**Time:** 8:00 PM – 8:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1420  
Learn about how children and adults think about their own abilities, and how you can help motivate children, coworkers, and others to learn.

**Why Meditate**  
**A Way Toward Self-Acceptance and Emotional Liberation**  
Jeff Lin, Graduate Student (Psychology); Megan Fisher, Laboratory Manager (Psychology)  
**Time:** 8:00 PM – 8:45 PM  
**Location:** Chemistry Building, Room 109  
How does mindfulness help us manage our emotions? This interactive presentation will explore the science behind the emotional benefits of meditation.

**Observing at MSU Observatory**  
Laura Choumiuk, Assistant Professor (Physics and Astronomy); Shannon Schmoll, Director (Abrams Planetarium)  
**Time:** 9:30 PM – 11:00 PM  
**Location:** MSU Observatory, 4299 Pavilion Dr., East Lansing  
We will have our 24-inch reflecting telescope open for observing wonders of the night sky. Weather permitting!
Bird Banding
Jen Owen, Associate Professor (Fisheries and Wildlife)

**Time:** 9:00 AM – 11:00 AM  
**Location:** Corner of Farm Lane and Trowbridge
See how researchers capture, band, and release birds. Participants will be given opportunities to release wild birds.

---

**Skeletons, Furs, Jaws, and Jars**  
**A Behind-the-Scenes Tour of the MSU Museum’s Vertebrate Collections**
Laura Abraczinskas, Collections Manager (MSU Museum); Julie Fick, Education Specialist (MSU Museum)

**Time:** 10:00 AM – 10:45 AM  
**Location:** MSU Museum, “Collections Connections” Room
See specimens of mammals, birds, reptiles, amphibians, fishes, and fossils. Learn how these support research and teaching at MSU and around the world.

---

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**Location:** MSU Museum, “Collections Connections” Room
See specimens of mammals, birds, reptiles, amphibians, fishes, and fossils. Learn how these support research and teaching at MSU and around the world.

---

**Tour of the Center for Advanced Microscopy**
Center for Advanced Microscopy; Stanley Flegler, Director; Melinda Frame, Confocal Microscopy Supervisor; Xudong Fan, Physical Sciences Transmission Electron Microscope Supervisor; Alicia Withrow, Biological Sciences Transmission Electron Microscope Supervisor; Carol Flegler, Electron Microscopist II; Abigail Vanderberg, Electron Microscopist

**Time:** 11:00 AM – 11:45 AM  
**Location:** Center for Integrated Plant Systems Building, Room B-4
Experience the wonder and amazement of the world of physical and biological sciences as seen through electron microscopes and laser microscopes.
MSU Science Festival is pleased to welcome special guest speaker

Scott Sampson

Dinosaurs of the Lost Continent

Scott Sampson, Paleontologist (Discovery Channel-Dinosaur Planet; PBS Dinosaur Train, Denver Museum of Nature and Science)

**Time:** presentation, 7:00 PM–8:00 PM; book signing and refreshments, 8:00 PM–9:00 PM

**Location:** Kellogg Center, Big Ten Room

Scott Sampson, possesses the delightful ability to engage and entertain his audiences with science! Join Dr. Sampson as he shares the work and world of the dinosaur paleontologist. Paleontologists have been collecting abundant, often spectacular dinosaur fossils from the Western Interior of North America for over a century, but only recently have we learned that most of these dinosaurs existed on a lost continent known as “Laramidia.” Dr. Sampson will address such questions as how these giants co-existed, why so many are adorned with horns, crests, domes, or spikes, as well as, the lessons we can learn from the greenhouse world of the Late Cretaceous Period.

Dr. Sampson is vice president of research and collections, and chief curator at the Denver Museum of Nature & Science. He has appeared in many television documentaries, served as the primary scientific consultant and on-air host of the four-part Discovery Channel series Dinosaur Planet, and is most popularly known as “Dr. Scott,” host and science advisor of the Emmy-nominated PBS KIDS television series Dinosaur Train.
Bird Banding
Jen Owen, Associate Professor (Fisheries and Wildlife)
**Time:** 9:00 AM – 11:00 AM  
**Location:** Corner of Farm Lane and Trowbridge  
See how researchers capture, band, and release birds. Participants will be given opportunities to release wild birds.

“Boot” Camp
Department of Radiology: Jerrod Bramer, Research Assistant 1; Feng Wei, Assistant Professor; Roger Haut, University Distinguished Professor
**Time:** 10:00 AM – 10:45 AM  
**Location:** East Fee Hall, Room A423  
Explore the science of footwear! Learn about plantar pressure and thermal and humidity measures that relate to comfort through demonstrations.

“RAD Research”
Using Imaging to Measure the Speed of Blood!
Jill Slade, Associate Professor (Radiology)
**Time:** 10:00 AM – 10:45 AM  
**Location:** Chemistry Building, Room 110  
The goal is to introduce medical imaging applications used in radiology research including interactive ultrasound.

Michigan Bird Sounds
Pamela Rasmussen, Assistant Curator (Zoology)
**Time:** 10:00 AM – 10:45 AM  
**Location:** MSU Museum Auditorium  
We’ll explore the varied songs and calls of Michigan’s birds and how you can use them to better understand your environment.

Moving Forward
The Science of Human Movement
Rajiv Ranganathan, Assistant Professor (Kinesiology); Mei-Hua Lee, Assistant Professor (Kinesiology)
**Time:** 10:00 AM – 10:45 AM  
**Location:** IM Sports Circle, Room 21  
Learn how researchers analyze human movement, and how this science is being applied in the rehabilitation of movement disorders.
MSU Science Festival is pleased to welcome special guest speaker Scott Sampson

Dr. Scott Talks Dinosaurs!

Scott Sampson, Paleontologist (Discovery Channel-Dinosaur Planet; PBS Dinosaur Train, Denver Museum of Nature and Science)

**Event Type**
Seminar/Demonstration

**Scientific Discipline**
Science Education

**Recommended Age Range**
Age 12 (7th Grade) and under

This event is generously sponsored by:

**PROGRAM**
**FEATURED EVENT**

**Scientific Glassblowing Demonstrations**
Scott Bankroff, Resident Scientific Glassblower (Chemistry)

**Time:** 10:00 AM – 10:45 AM

**Location:** Chemistry Building, Room 93

Come watch a live scientific glassblowing demonstration and learn about the process behind the creation of laboratory glassware.

**Recycling the Periodic Table**
James Ives, Education Coordinator (Infrastructure, Planning and Facilities)

**Time:** 10:00 AM – 10:45 AM

**Location:** Biomedical Physical Sciences Building, Room 1400

Come and explore how all those items you recycle come from the periodic table.

This kid-friendly interactive presentation is tailored for 2-8 year-olds and all other dinosaur enthusiasts!
### Moving Forward
**The Science of Human Movement**
Rajiv Ranganathan, Assistant Professor (Kinesiology); Mei-Hua Lee, Assistant Professor (Kinesiology)

**Time:** 11:00 AM – 11:45 AM  
**Location:** IM Sports Circle, Room 21  
Learn how researchers analyze human movement and how this science is being applied in the rehabilitation of movement disorders.

### Bug House Open House
**Gary Parsons, Academic Specialist (Entomology)**

**Time:** 10:00 AM – 4:00 PM  
**Location:** Natural Science Building, Room 146  
Come visit the Bug House and learn about the amazing world of insects and other arthropods.

### “RAD Research”
**Using Imaging to Measure the Speed of Blood!**
Jill Slade, Associate Professor (Radiology)

**Time:** 11:00 AM – 11:45 AM  
**Location:** Chemistry Building, Room 110  
The goal is to introduce medical imaging applications used in radiology research including interactive ultrasound.
Science in State Government
Your Tax Dollars at Work
Diane Donham, Reference Librarian (State of Michigan)

Time: 11:00 AM – 11:45 AM
Location: Chemistry Building, Room 109
From preparing for public health emergencies to designing more pothole resistant roads, science is at work in Michigan’s government agencies.

Uniting Veterinary Medicine and Social Science
Ruben Martinez, Director (Julian Samora Research Institute); Andres Contreras Bravo, Assistant Professor (College of Veterinary Medicine)

Time: 11:00 AM – 11:45 AM
Location: Biomedical Physical Sciences Building, Room 1420
Learn how researchers from veterinary medicine and social science collaborate on improving the quality of milk on dairy farms.

Citizen Science!
How Curious Citizens Contribute to Research Around the World
Casey O’Donnell, Assistant Professor (Media and Information); Pat Soranno, Professor (Fisheries and Wildlife); Kara Haas, Science Education and Outreach Coordinator (Kellogg Biological Station); Darren Bagley, Environment and Outdoor Educator (MSU Extension)

Time: 11:00 AM – 12:30 PM
Location: Biomedical Physical Sciences Building, Room 1415
Join our panel of researchers to discuss their work and discover ways you can contribute as a citizen scientist!

Explore the Herbarium
Kim Ferguson (MSU Herbarium)

Time: 11:00 AM – 2:00 PM
Location: MSU Herbarium, Plant Biology Laboratories, Room 151
Learn how to preserve plants, observe lichens with a microscope, identify plants of Michigan, and see strange and exotic plants from around the world!

Chemistry and the Human Senses
Department of Chemistry: Chrysoula Vasileiou, Academic Specialist; Babak Borhan, Professor; Elizabeth Santos, Doctoral Student; Ipek Yapici, Doctoral Student; Wei Sheng, Doctoral Student

Time: 11:00 AM – 4:00 PM
Location: Chemistry Building, Room 581
During this hands-on presentation, the chemistry associated with the human senses will be discussed and demonstrated.
If You Can Dream It, You Can D.O. It!
Floyd Hardin, Manager of Outreach and Inclusion (College of Osteopathic Medicine Admissions)

**Time:** 12:00 PM – 12:45 PM  
**Location:** Chemistry Building, Room 110  
MSUCOM’s outreach programs are designed to help students gain exposure to osteopathic medicine through fun and interactive workshops.

Fire, Water, and Ice  
Michigan’s Geological Story  
Danita Brandt (Geological Sciences)

**Time:** 12:00 PM – 12:45 PM  
**Location:** MSU Museum Auditorium  
Learn what a Petoskey stone tells us about Michigan’s ancient environment and discover Michigan’s geologic history through fire, water, and ice.

Bio-Mechanics  
Understanding Human Movement  
Peter Reeves (Osteopathic Surgical Specialties)

**Time:** 12:00 PM – 12:45 PM  
**Location:** Chemistry Building, Room 109  
Discover how the body is controlled to produce movement through hands-on demonstrations of research equipment used to study human motor control.

Moving Forward  
The Science of Human Movement  
Rajiv Ranganathan, Assistant Professor (Kinesiology); Mei-Hua Lee, Assistant Professor (Kinesiology)

**Time:** 12:00 PM – 12:45 PM  
**Location:** IM Sports Circle, Room 21  
Learn how researchers analyze human movement and how this science is being applied in the rehabilitation of movement disorders.

Plants and Pollination Around the World  
Tour of MSU’s Plant Biology Teaching Conservatory  
Lisa Stelzner, Doctoral Student (Plant Biology)

**Time:** 12:00 PM – 12:45 PM  
**Location:** MSU Plant Science Greenhouses  
Tour MSU’s teaching greenhouse and learn about plant adaptations for pollination and defense from desert and rainforest ecosystems around the world.
Recycling the Periodic Table
James Ives, Education Coordinator (Infrastructure, Planning and Facilities)
**Time:** 12:00 PM – 12:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1400  
Come and explore how all those items you recycle come from the periodic table.

Electricity and Electrochemistry
Johnson Controls Power Solutions Engineering Team
**Time:** 1:00 PM  
**Location:** Biomedical Physical Sciences Building, Room 1400  
Demystify electricity and understand electrochemistry by exploring the anatomy of a battery. Discover what makes electrons move to power everyday devices.

Bats of the World
Eric Tans, Librarian I (Library); Theresa Moore, Graphic Artist II (Library)
**Time:** 1:00 PM – 1:45 PM  
**Location:** MSU Main Library, North Conference Room, Room W449  
Explore the unique roles bats play in our world. Meet live bats and get inspired to protect these misunderstood creatures.

Moving Forward
The Science of Human Movement
Rajiv Ranganathan, Assistant Professor (Kinesiology); Mei-Hua Lee, Assistant Professor (Kinesiology)
**Time:** 1:00 PM – 1:45 PM  
**Location:** IM Sports Circle, Room 21  
Learn how researchers analyze human movement, and how this science is being applied in the rehabilitation of movement disorders.

Physics is Fun!
Tibor Nagy, Instructor (Physics and Astronomy)
**Time:** 1:00 PM – 1:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1410  
Come and see exciting physics demonstrations about the most important physical laws from mechanics to electromagnetism, from light to thermodynamics.
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<td>Plants and Pollination Around the World</td>
<td>Plant and Animal Sciences</td>
<td>All ages (kids to adults)</td>
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### Plants and Pollination Around the World
**Tour of MSU’s Plant Biology Teaching Conservatory**
Lisa Stelzner, Doctoral Student (Plant Biology)

**Time:** 1:00 PM – 1:45 PM  
**Location:** MSU Plant Science Greenhouses  
Tour MSU’s teaching greenhouse and learn about plant adaptations for pollination and defense from desert and rainforest ecosystems around the world.

### Scientific Glassblowing Demonstrations
Scott Bankroff, Resident Scientific Glassblower (Chemistry)

**Time:** 1:00 PM – 1:45 PM  
**Location:** Chemistry Building, Room 93  
Come watch a live scientific glassblowing demonstration and learn about the process behind the creation of laboratory glassware.

### Spring Ephemerals
Peter Carrington, Assistant Curator (Beal Botanical Garden)

**Time:** 1:00 PM – 1:45 PM  
**Location:** W.J. Beal Botanical Garden  
Join Peter Carrington of the W. J. Beal Botanical Garden on a tour of the earliest spring flowers.

### The Science of Beer Brewing
Matt Jason, CEO (Sleepwalker Spirits & Ale)

**Time:** 1:00 PM – 1:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1420  
From yeasts to bacteria and mold, learn how microorganisms are critical in the creation of wine, beer, and a multitude of other alcoholic beverages.

### Make Your Own Map!
**Exploring Geographic Information Science**
Kathleen Weessies, Geosciences Librarian (Library)

**Time:** 1:00 PM – 2:00 PM  
**Location:** MSU Main Library, Map Library  
Make your own custom map with ArcGIS Online, and learn about the science behind geographic information systems.
**Blue Sky Science**

“What is the Role of Curiosity in Science?”

Richard Lenski, Hannah Distinguished Professor (Plant Soil and Microbial Sciences); Richard Bellon, Assistant Professor (Lyman Briggs College); Zachary Kohley, Assistant Professor (National Superconducting Cyclotron Laboratory); Hans Schroder, Doctoral Student (Psychology); Wendy Johnson, Doctoral Student (Curriculum, Instruction and Teacher Education)

**Time:** 1:00 PM – 2:30 PM  
**Location:** Biomedical Physical Sciences Building, Room 1415

A panel of MSU researchers will discuss the role of curiosity in science from multiple different perspectives.

**Event Type**  
Panel

**Scientific Discipline**  
Science Education

**Recommended Age Range**  
All ages (kids to adults)

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**Haiku Hike**

Linnea Jimison, Assistant Director (RCAH Center for Poetry)

**Time:** 1:00 PM – 2:30 PM  
**Location:** Chemistry Building, Room 109

Haiku, a traditional form of Japanese poetry, focuses on an instant in nature. Join us for a nature walk around campus where we write our own haiku!

**Event Type**  
Interactive Presentation

**Scientific Discipline**  
Arts, Culture, and Design

**Recommended Age Range**  
All ages (kids to adults)

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**Night Skies and Light Pollution**

Shannon Schmoll, Director (Abrams Planetarium); Mary Stewart Adams, Program Director (Dark Sky Park); Karen Wight, Observatory Project Coordinator (Detroit Observatory at University of Michigan); Kenneth Beach, Engineer/Architect (IPF and Architectural Services)

**Time:** 1:00 PM – 2:30 PM  
**Location:** Abrams Planetarium

Join astronomers, storytellers, and lighting industry experts to discuss the past, present and future of artificial light and natural darkness.

**Event Type**  
Panel

**Scientific Discipline**  
Physics, Astronomy, and Chemistry

**Recommended Age Range**  
Age 6 (1st Grade) and up

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**Architectural Tour of the Eli and Edythe Broad Art Museum**

Lana Stigura, Education Department (The Eli and Edythe Broad Art Museum)

**Time:** 2:00 PM – 2:45 PM  
**Location:** The Eli and Edythe Broad Art Museum

Learn how Zaha Hadid’s innovative design used materials, geometry, and the manipulation of light to create spaces for art viewing.

**Event Type**  
Tour

**Scientific Discipline**  
Arts, Culture, and Design

**Recommended Age Range**  
All ages (kids to adults)
Moving Beyond a Shotgun Approach
Addressing Invasive Species in Michigan
Phyllis Higman (Michigan Natural Features Inventory)

**Time:** 2:00 PM – 2:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1400  
Participants will learn about key invasive species to be on the lookout for and what they can do to be part of the solution.

The Effects of Anticancer Spices
on Liver Cancer Cells
Purva Shanker, High School Research Assistant (Chemical Engineering and Materials Science)

**Time:** 2:00 PM – 2:45 PM  
**Location:** Chemistry Building, Room 110  
Purva Shanker, a senior at Okemos High School, will present her research on the effects of anticancer spices on specific parts of liver cancer cells.

The Magic of Chemistry
Joseph Ward, Coordinator of General Chemistry Laboratories (Chemistry)

**Time:** 2:00 PM – 2:45 PM  
**Location:** Chemistry Building, Room 138  
Is it magic or chemistry? Come join us as we take you behind the curtain for a number of interesting, fun, and sometimes loud examples of chemistry.

The Geography and Evolution
of Sand Dunes Along the Eastern
Shore of Lake Michigan
Alan Arbogast, Chairperson (Geography)

**Time:** 3:00 PM – 3:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1420  
Did you know that the largest body of coastal sand dunes in the world is found along the eastern shore of Lake Michigan? Learn more in this session.

Botanical Illustration Workshop
Peter Carrington, Assistant Curator (Beal Botanical Garden)

**Time:** 3:00 PM – 5:00 PM  
**Location:** W.J. Beal Botanical Garden  
Join Peter Carrington for a hands-on introduction to botanical drawing in the W. J. Beal Botanical Garden.
Explore our universe with a series of astronomy presentations and activities Saturday night! Take in a seminar on the myths and stories of the constellations with Director of the International Dark Sky Park, Mary Stewart Adams. Sit back and enjoy a free show at Abrams Planetarium, courtesy of new state of the art technology. Stop by the Observatory and explore the night sky with professionals and hobbyists alike! (clear skies permitting!)

---

**Free Planetarium Show!**

Abrams Planetarium: Shannon Schmoll, Director; John French, Production Coordinator; Shane Horvatin, Education Coordinator

**Time:** 6:30 PM – 7:30 PM or 8:00 PM – 9:00 PM  
**Location:** Abrams Planetarium, MSU Campus, 755 Science Rd.

Astronomy night includes a special free viewing of our weekend show. Come join the fun and make an evening of it!

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**The Storyteller’s Guide to the Night Sky**

Mary Stewart Adams, Program Director (Dark Sky Park)

**Time:** 8:00 PM – 8:45 PM  
**Location:** Chemistry Building, Room 138

Approaching the starry night sky through the lens of the storyteller awakens the imaginations in science with a human-centered quality.

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**Observing at MSU Observatory**

Laura Choumiuk, Assistant Professor (Physics and Astronomy); Shannon Schmoll, Director (Abrams Planetarium)

**Time:** 9:30 PM – 11:00 PM  
**Location:** MSU Observatory, 4299 Pavilion Dr., East Lansing

We will have our 24-inch reflecting telescope open for observing wonders of the night sky. Weather permitting!
Sunday, April 19, 2015

Music, Math, and Science
Mark Sullivan, Associate Professor of Composition (Music)

**Time:** 11:00 AM – 11:45 AM  
**Location:** Music Building, Cook Recital Hall  
Discover the scientific and mathematical basis of sound and music events; from sound waves to the secrets of an unpressed piano key.

Scientific Glassblowing Demonstrations
Scott Bankroff, Resident Scientific Glassblower (Chemistry)

**Time:** 11:00 AM – 11:45 AM  
**Location:** Chemistry Building, Room 93  
Come watch a live scientific glassblowing demonstration and learn about the process behind the creation of laboratory glassware.

Why Meditate
A Way Toward Self-Acceptance and Emotional Liberation
Jeff Lin, Graduate Student (Psychology); Megan Fisher, Laboratory Manager (Psychology)

**Time:** 11:00 AM – 11:45 AM  
**Location:** Biomedical Physical Sciences Building, Room 1420  
How does mindfulness help us manage our emotions? This interactive presentation will explore the science behind the emotional benefits of meditation.

Science and the Movies
What They Get Right and Wrong!
Shannon Schmoll, Director (Abrams Planetarium); Norm Lownds, Associate Professor (Horticulture); Ellen Jesmock, Graduate Student (Forensic Biology)

**Time:** 11:00 AM – 12:30 PM  
**Location:** Abrams Planetarium  
Movies entertain us, but when do they stray from facts to amp up the drama? Join Dr. Schmoll, Dr. Lownds, and guests for this fun and informative talk!
Bug House Open House
Gary Parsons, Academic Specialist (Entomology)
**Time:** 11:00 AM – 4:00 PM  
**Location:** Natural Science Building, Room 146  
Come visit the Bug House and learn about the amazing world of insects and other arthropods.

The Tree Doctor
Diagnosing and Managing Michigan Tree Maladies
David Roberts, Senior Academic Specialist (Agriculture and Natural Resources)
**Time:** 12:00 PM – 12:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1415  
Michigan’s major tree problems will be discussed with reference to diagnostic and management procedures that will maintain good tree health.

Burgdorf’s Winery Tour and Tasting
Dave and Deb Burgdorf, (Burgdorf Winery)
**Time:** 12:00 PM – 5:00 PM  
**Location:** Burgdorf’s Winery, 5635 Shoeman Rd., Haslett  
Burgdorf’s Winery opens its doors for a special tour of the production facility.

Building Sustainable Communities in Michigan
Igor Vojnovic, Associate Professor (Geography)
**Time:** 1:00 PM – 1:45 PM  
**Location:** Biomedical Physical Sciences Building, Room 1415  
This presentation will explore how sustainable communities can be built in Michigan.

Plants and Pollination Around the World
Tour of MSU’s Plant Biology Teaching Conservatory
Lisa Stelzner, Doctoral Student (Plant Biology)
**Time:** 1:00 PM – 1:45 PM  
**Location:** MSU Plant Science Greenhouses  
Tour MSU’s teaching greenhouse and learn about plant adaptations for pollination and defense from desert and rainforest ecosystems around the world.
Plants Toxic to People and Pets
Peter Carrington, Assistant Curator (Beal Botanical Garden)

**Time:** 1:00 PM – 1:45 PM  
**Location:** W. J. Beal Botanical Garden  
Join Peter Carrington on a tour of the Beal Garden to learn about plant species that can injure both human inhabitants and their pets.

Tour the National Superconducting Cyclotron Laboratory
Zach Constan, Outreach Coordinator (National Superconducting Cyclotron Laboratory)

**Time:** 1:00 PM – 2:00 PM  
**Location:** Cyclotron, Room 1200  
A guided tour through the vaults to see the experimental equipment up close.

Innovations in Renewable Energy
Phillip Duxbury, Chairperson (Physics and Astronomy); Dana Kirk, Assistant Professor (Biosystems and Agricultural Engineering); Jennifer Battle, Director (Office of Campus Sustainability); Thomas Hamann, Associate Professor (Chemistry)

**Time:** 1:00 PM – 2:30 PM  
**Location:** Chemistry Building, Room 138  
Join our panel of experts as they share and discuss the latest innovations in renewable resources.

Architectural Tour of the Eli and Edythe Broad Art Museum
Lana Stigura, Education Department (The Eli and Edythe Broad Art Museum)

**Time:** 2:00 PM – 2:45 PM  
**Location:** The Eli and Edythe Broad Art Museum  
Learn how Zaha Hadid’s innovative design used materials, geometry, and the manipulation of light to create spaces for art viewing.

Fire, Water, and Ice
**Michigan’s Geological Story**
Danita Brandt, (Geological Sciences)

**Time:** 2:00 PM – 2:45 PM  
**Location:** MSU Museum Auditorium  
Learn what a Petoskey stone tells us about Michigan’s ancient environment and discover Michigan’s geologic history through fire, water, and ice.
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<tr>
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<th>Location</th>
<th>Scientific Discipline</th>
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<td>Tour</td>
<td><strong>Plants and Pollination Around the World</strong></td>
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<td>Tour</td>
<td><strong>Spring Discovery Walk</strong></td>
<td>2:00 PM – 2:45 PM</td>
<td>Harris Nature Center, 3998 Van Atta Rd., Okemos</td>
<td>Science Education</td>
<td>All ages (kids to adults)</td>
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<td></td>
<td>Kit Rich, Nature Center Coordinator (Harris Nature Center); Kati Adams, Park Naturalist (Harris Nature Center)</td>
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<td>Tree buds are popping and wildflowers are stirring; it’s time to discover nature! Visit the Harris Nature Center for a guided nature walk.</td>
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<td>Panel</td>
<td><strong>Edible Michigan—We’re Number One!</strong></td>
<td>2:00 PM – 3:30 PM</td>
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<td>Gregory Lang, Professor (Horticulture); Mary Hausbeck, Professor and Extension Specialist; George W. Sundin, Professor (Plant, Soil and Microbial Sciences)</td>
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<td>Did you know Michigan is the leading U.S. producer of pickling cucumbers and tart cherries? Learn the latest research! Enjoy samples and recipes.</td>
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Mathemagics!
An Afternoon of Math and Magic with Art Benjamin!

Time: 3:30 PM – 4:30 PM, followed by a book/DVD signing and refreshments
Location: Chemistry Building Room 138
Passionate about sharing the beauty and wonder of his two favorite things: math and magic! Combining the two he has created a dynamic presentation that will entertain the whole family!

Dr. Benjamin has appeared on many television and radio programs in America, Australia, and Britain, including the Today Show, CNN, The Colbert Report, and National Public Radio. He has been profiled in the New York Times, USA Today, Scientific American, Discover, and People magazine. Dr. Benjamin has presented three TED talks, one of which has been viewed over five million times! Following his presentation, Dr. Benjamin will sign his books and DVD’s; Secrets of Mental Math, Mathemagics, and The Great Courses: Science and Mathematics seminars.

The Craft and Chemistry of Brewing
Pat Riley, Owner-Operator (Harper’s Restaurant & Brewpub)
Time: 5:00 PM – 7:00 PM
Location: Harper’s Restaurant & Brew Pub, 131 Albert Ave., East Lansing
Join brewmaster experts for a frothy look at the chemistry, process, types, and tastes behind your favorite craft beers.

PLEASE NOTE: The Science Festival website will have the most up to date information. Please visit the website at: sciencefestival.msu.edu/schedule

Tell us what you think! Visit an information booth to fill out an evaluation and enter to win!
1. Abrams Planetarium
2. Biomedical Physical Sciences (BPS)
3. Center for Integrated Plant Systems
4. Chemistry Building
5. Cyclotron
6. Delta Dental Early Childhood Zone (PSS)
7. Eli and Edythe Broad Art Museum
8. Engineering Building
9. East Fee Hall
10. IM Sports Circle
11. Kellogg Center
12. LSJ Expo Zone (BPS and Chemistry)
13. Main Library
14. MSU Museum
15. Music Building
16. Natural Science/Bug House
17. Observatory (Extended Campus)
18. Plant and Soil Sciences Atrium (PSS)
19. Plant Biology Laboratories/Herbarium
20. Plant Science Greenhouses
21. W.J. Beal Botanical Gardens
WEEKEND CAFETERIA SITES

A. Brody ................. 7 AM – 12 AM
B. Case .................. 7 AM – 9 PM
C. MSU Dairy Store ...... 12 PM – 8 PM
D. MSU Union .......... variable hours
E. Owen ................. 11 AM – 9 PM/ 11 AM – 11 PM
F. Shaw .................. 7 AM – 8 PM
G. Snyder/Phillips ...... 7 AM – 12 AM
H. Akers ................ 7 AM – 12 PM
I. Landon ............... 7 AM – 12 AM
J. Holmes .............. 7 AM – 12 AM
Primary and early elementary teachers and specialists demonstrate their best science activities within a zone designated for preschoolers!

Located at Plant and Soil Sciences Atrium (See map on page 28)

**Saturday, April 18:** 10:00 AM – 4:00 PM  •  **Sunday, April 19:** 11:00 AM – 4:00 PM

**PLEASE NOTE:** The Science Festival website will have the most up to date information. Please visit the website at: sciencefestival.msu.edu/schedule

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**Chromatography Butterflies**
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

**Time:** Saturday, 10:00 AM – 4:00 PM  •  Sunday, 11:00 AM – 4:00 PM

Chromatography is the scientific process of separating mixtures. Test this out for yourself and make a colorful butterfly to take home.

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**Dancing Kernels**
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

**Time:** Saturday, 10:00 AM – 4:00 PM  •  Sunday, 11:00 AM – 4:00 PM

This activity gives children an opportunity to participate in a fascinating mini-experiment and highlights major steps of inquiry for preschoolers.
Hydration and Dehydration
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

Time: Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM
Using giant water beads, children can observe and experiment to learn about hydration and dehydration.

Inquiring Minds Want to Know
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

Time: Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM
This station will provide parents with information they can share with their children at home to promote and encourage inquiry skills.

Launching
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

Time: Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM
Build your own launcher and see how far you can launch a marshmallow and a cotton ball.

Learning About Science the Montessori Way
Susie Hyatt, Administrator (Montessori Radmoor School); Mo Newton, Administrator (Montessori Children’s House of Lansing)

Time: Saturday, 10:00 AM – 4:00 PM
Explore learning through your senses with wonderful hands on materials. Next, travel our world and discover how fun learning about continents can be!

Make and Take Lava Lamps
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

Time: Sunday, 11:00 PM – 4:00 PM
Make your own lava lamp and discover whether water or oil is more dense!
Ramp up Science
Attracting Young Scientists with Ramps, Tunnels and Magnets
Sally Mowers, Head Teacher (Human Development and Family Studies: Child Development Lab); Lillian McFarlin, Assistant Director (Human Development and Family Studies: Child Development Lab)

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

Using everyday materials, such as recycled tubes, children will use science process skills to explore the forces of magnetism and gravity.

Ramps and Things that Roll
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

Learn simple practices of physical science and engineering by playing with ramps and things that roll.

Science Play!
Meredith Lammers, Young Child Programs Coordinator (Impression 5)

**Time:** Saturday, 10:00 AM – 4:00 PM

Come explore science with hands-on science sensory tables and science activities geared to our youngest scientists.

Simple Plant Science Activities for Kids
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

**Time:** Saturday, 10:00 AM – 4:00 PM

Learn more about plants and seeds and what they need to grow with these make and take plant activities!

Soil Scramble
Theresa Silm, Senior Educator (MSU Extension: Early Childhood Education)

**Time:** Sunday, 11:00 PM – 4:00 PM

We know that warm water and soap cleans dirt, but did you know that dirt cleans water? Experiment with soils to find which purify water better.

STEAM Storytime
Lauren Douglass, Head of Technology Services (East Lansing Public Library)

**Time:** Sunday, 11:00 PM – 4:00 PM

**Location:** Molecular Plant Sciences Building, Room 1200
Join staff from the East Lansing Public Library for stories, science, and fun!
EXPO ZONE

Featuring hands-on activities for the whole family to enjoy!
Located in the Chemistry and Biomedical Physical Sciences Buildings, between Shaw Lane and Wilson Rd. (See map on page 28)

**Saturday, April 18:** 10:00 AM – 4:00 PM • **Sunday, April 19:** 11:00 AM – 4:00 PM

**PLEASE NOTE:** The Science Festival website will have the most up to date information. Please visit the website at: sciencefestival.msu.edu/schedule

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### Exploring Careers In Natural Science

Career Specialists, College of Natural Sciences

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

Curious about careers in natural science? Stop by and explore the wide range of options available!

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### 3D Printing—What’s in Your Maker Space?

Jerry Fahner, (Lansing Makers Network)

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

What would you make? By depositing layers of plastic, 3D printers can make almost anything! Come see for yourself.

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### A Smashing Time with Nuclei

Zach Constan, Outreach Coordinator (National Superconducting Cyclotron Laboratory)

**Time:** Saturday, 10:00 AM – 4:00 PM

**Location:** Cyclotron Building North Entrance facing Shaw Lane

Get hands-on with a model nucleus that you can accelerate and smash to make isotopes that don’t exist on Earth, but might be made in stars.
Auditory Illusions and Confusions
William Hartmann, Professor; Eric Macaulay, Graduate Student (Physics and Astronomy)
**Time:** Sunday, 11:00 PM – 4:00 PM
Discover the abilities and limitations of our perception of sound. Three auditory effects will be demonstrated to reveal how we are sometimes tricked.

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Birds and Climate Change
Kara Haas, Science Education and Outreach Coordinator (Kellogg Biological Station); Sara Griffith, Education Intern (Kellogg Biological Station)
**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM
Will climate change affect local birds? Learn about climate change research at Kellogg Biological Station and how the Michigan landscape is changing.

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Capital Area District Libraries
Science Fun
Jolee Hamlin, Associate Director of Public Service (Capital Area District Libraries)
**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM
Come to the Capital Area District Libraries’ expo booth to enjoy an exciting science experiment and other science fun!

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Crafting Scientific Explanations
How Using Yarn, Pipe Cleaners, and Beads Can Help You Think Like a Scientist
Terri McElhinny, Assistant Professor (Integrative Biology)
**Time:** Sunday, 11:00 PM – 4:00 PM
**Location:** Biomedical Physical Sciences Building, BEACON Lounge
Come interact with biologists and crafters, and use handicrafts to extend your understanding of science!

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Creative Creatures
Insights into Insects Through Maggot Art and Aquatic Invertebrate Puzzles
Department of Entomology: Courtney Larson, Doctoral Student; Jennifer Pechal, Post-Doctoral Research Associate; Eric Benbow, Assistant Professor; Courtney Weatherbee, Master’s Student
**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM
Use maggots as paint brushes to create a one of a kind painting, and assemble an aquatic insect using structures that relate to its ecosystem roles.
Delicious Bacteria
Food Fermentation
Department of Cell and Molecular Biology: Siobhan Cusack, Graduate Assistant; Department of Microbiology and Molecular Genetics: Jackson Sorensen, Graduate Assistant; Keara Towery, Research Assistant; Enya deFeijter, Undergraduate Assistant

Time: Saturday, 10:00 AM – 4:00 PM  
Sunday, 11:00 AM – 4:00 PM
Bacteria can be friendly! Through fermentation, they help make some of our favorite foods. We will have samples and explanations about this process.

Electrifying!
Michael Flaga, Board Member (Lansing Makers Network)

Time: Saturday, 10:00 AM – 4:00 PM  •  Sunday, 11:00 AM – 4:00 PM
Ride an exercise bicycle that has been re-purposed to create lightning, and create a circuit with a hands-on electronic train.

Evolution in Action
BEACON: Louise Mead, Education Director; Emily Dolson, Doctoral Student; Josh Nahum, Postdoc; Jay Bundy, Doctoral Student; Kevin McCormick, Doctoral Student

Time: Saturday, 10:00 AM – 4:00 PM
Location: Biomedical Physical Sciences Building, BEACON Lounge
Evolution isn’t just biological. Come check out how evolutionary processes can even solve engineering problems.

Explore! Discover! Observe!
Beany Tomber, Education Coordinator (Broadcasting Services); ShaDonna Crosby, Assistant Development Director (Broadcasting Services)

Time: Sunday, 11:00 AM – 4:00 PM
This event features hands-on science activities based on PBS children’s programs, including The Cat in the Hat, Sid the Science Kid, and more.

Extract Your Own DNA
Biochemistry and Molecular Biology Club: Mackenzie Fountain, President; Noel Samsun, Treasurer; Mirna Kaafarani, Secretary; Jack Chiu, Vice-President; Jean-Yves Azar, Publicist

Time: Saturday, 10:00 AM – 4:00 PM  •  Sunday, 11:00 AM – 4:00 PM
In this quick experiment, you can find your own DNA from your cheek cells. This experiment will take around 5 minutes and you can leave with DNA.
<table>
<thead>
<tr>
<th>Event Name</th>
<th>Organizer/Presenter</th>
<th>Time</th>
<th>Scientific Discipline</th>
<th>Recommended Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extract Your Own DNA!</td>
<td>Kari Storm, Outreach Coordinator (Veterinary Medicine)</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong> • <strong>Sunday, 11:00 PM – 4:00 PM</strong></td>
<td>DNA is the blueprint of life. Participants can extract their own cheek cell DNA and discover where it is found and what it looks like!</td>
<td>Plant and Animal Sciences</td>
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<td>All ages (kids to adults)</td>
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<tr>
<td>Forces and Levers</td>
<td>Shelley Davis Mielock and Heather Pacheco, Local Development Managers (K12, Inc.)</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong> • <strong>Sunday, 11:00 PM – 4:00 PM</strong></td>
<td>Learn about force using a balance to discover how levers change the amount of force needed to lift an object.</td>
<td>Plant and Animal Sciences</td>
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<td>All ages (kids to adults)</td>
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<tr>
<td>Frozen Fun with Dry Ice</td>
<td>Cranbrook Institute of Science: John Maddox, Educator; Sarah Schleicher, Educator; Katherine Finneran, SOG Coordinator</td>
<td><strong>Sunday, 11:00 PM – 4:00 PM</strong></td>
<td>Come learn about the science behind dry ice. Stop by to experience frozen fun with experiments, demonstrations, and hands-on activities.</td>
<td>Physics, Astronomy, and Chemistry</td>
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<td>All ages (kids to adults)</td>
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<tr>
<td>Fun with Electronics</td>
<td>Michael Flaga, Board Member (Lansing Makers Network)</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong> • <strong>Sunday, 11:00 PM – 4:00 PM</strong></td>
<td>Learn about circuits and build basic electronics!</td>
<td>Plant and Animal Sciences</td>
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<td>All ages (kids to adults)</td>
</tr>
<tr>
<td>Going Green</td>
<td>Plant Science at MSU</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong> • <strong>Sunday, 11:00 PM – 4:00 PM</strong></td>
<td>Join us to get a hands-on look at some unusual plants, including some that move, using actual research instruments.</td>
<td>Plant and Animal Sciences</td>
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<td></td>
<td>Department of Biochemistry: Sean Weise, Assistant Professor; Department of Plant Biology: Joe Uebler, Student; Elena Michel, Student; Tyler Karty, Student; Lauren Selweski, Student</td>
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<td></td>
<td>All ages (kids to adults)</td>
</tr>
<tr>
<td>Green Chemistry!</td>
<td>Green Chemistry! Making Molecules Better and Faster</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
<td>Green chemistry comes to life! Use the LED interactive touch screen; see, touch, and build large 3-D molecules; and much more!</td>
<td>Physics, Astronomy, and Chemistry</td>
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<td></td>
<td>Monya Ruffin, CCHF Director of Education, Outreach, Diversity (Emory University)</td>
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<td>All ages (kids to adults)</td>
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<td><strong>Homopolar Motors</strong></td>
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<tr>
<td>Carl Raymond, (Lansing Makers Network)</td>
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<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
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<tr>
<td>Electric motors are everywhere, from cell phones to locomotives! Learn how a simple motor can be made with just a battery, a magnet, and wire.</td>
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<tr>
<th><strong>How Do Species Interact Within Forest Ecosystems?</strong></th>
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</thead>
<tbody>
<tr>
<td>Kileigh Browning and Katherine Wood, Doctoral Students (Forestry)</td>
</tr>
<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM</td>
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<tr>
<td>This exhibit shows how species interact in forests and how food chain levels influence one another.</td>
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<tr>
<th><strong>LCC Immersive Science Exploration</strong></th>
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</thead>
<tbody>
<tr>
<td>Mindy Wilson, Science Department (Lansing Community College)</td>
</tr>
<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
</tr>
<tr>
<td>Join Lansing Community College science faculty and students as they present a variety of hands-on activities!</td>
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<thead>
<tr>
<th><strong>Life on a Mobius Strip</strong></th>
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<tbody>
<tr>
<td>Ashley Ahlin, Outreach Coordinator (Mathematics)</td>
</tr>
<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM</td>
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<tr>
<td>Can you imagine life on a surface where a short walk could turn a “d” into a “b”?</td>
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<tr>
<th><strong>Lung Function</strong></th>
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</thead>
<tbody>
<tr>
<td>Janice Schwartz, Assistant Professor (Physiology)</td>
</tr>
<tr>
<td><strong>Time:</strong> Sunday, 11:00 PM – 4:00 PM</td>
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<tr>
<td>Build your own lung model and explore lung and respiratory system functions through hands-on demonstrations!</td>
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<tr>
<th><strong>Meet the Grand Slam of Michigan Turtles</strong></th>
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<tbody>
<tr>
<td>Nature Discovery: Carol McGrath, Jim McGrath; Andrew Nowicki</td>
</tr>
<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
</tr>
<tr>
<td><strong>Location:</strong> Biomedical Physical Sciences Building, Room 1425</td>
</tr>
<tr>
<td>Live specimens of Michigan’s ten species of turtles will be exhibited in various pools and aquariums for close-up inspection.</td>
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<tr>
<th><strong>Mega-Operation</strong></th>
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<tbody>
<tr>
<td>Michael Flaga, Board Member (Lansing Makers Network)</td>
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<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
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<tr>
<td>Familiarize yourself with the human body by playing this giant-sized Operation table game.</td>
</tr>
</tbody>
</table>
### Mega-Tetris
**Michael Flaga, Board Member (Lansing Makers Network)**

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

Studies have shown that playing Tetris may lead to increased brain efficiency! Test this out with an over-sized version of this classic game.

### Michigan State Geology Club
**Rocks Rock!**

**Jeremy Rapp and Alex Pink, Undergraduate Students (Geology)**

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

Come explore the many rocks and minerals all around us with the Michigan State Geology Club!

### Mindboggling!
**Explore How Your Nervous System Operates**

**Jennifer Taylor, Academic Specialist (Neuroscience)**

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

Examine real human and animal brains up close and try some activities that challenge your brain!

### MSU Science Theatre

**MSU Science Theatre: Sarah Mundwiler, Director; David Pastula; Monique Daignault; Megan O’Donovan; Elissa Jensen; Travis Lange; Katie Ryan; Michelle Herzinger,**

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

Discover the wonders of science through demonstrations with the MSU Science Theatre!

### MSU Vermicomposting
**Composting with Worms!**

**Eamon Devlin and Jake Brekke, (MSU Vermicomposting)**

**Time:** Sunday, 11:00 AM – 4:00 PM

Learn how worms can be used to turn food scraps into fertile soil. The system is simple to make and maintain. Stop on by to learn some more!

### Paint the Stars and Draw the Planets

**Shannon Schmoll, Director (Abrams Planetarium)**

**Time:** Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 AM – 4:00 PM

**Location:** Abrams Planetarium

Paint constellations with glow-in-the-dark paint or draw out planets in a scale model of the solar system that fits in your pocket!
<table>
<thead>
<tr>
<th>Event Title</th>
<th>Organizer/Mentor</th>
<th>Dates</th>
<th>Time</th>
<th>Description</th>
<th>Recommended Age Range</th>
<th>Scientific Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>RepRap 3D Printers</td>
<td>Randy Schott, (Lansing Makers Network)</td>
<td>Saturday, Sunday</td>
<td>10:00 AM – 4:00 PM</td>
<td>Come see a 3D printer in action, learn how they work, and how you can build your very own.</td>
<td>All ages</td>
<td>Engineering and Technology</td>
</tr>
<tr>
<td>Robotic Fish</td>
<td>Xiaobo Tan, Associate Professor</td>
<td>Saturday</td>
<td>10:00 AM – 4:00 PM</td>
<td>Come see the MSU robotic fish in a tank and learn how these robots can be used in monitoring our aquatic environments.</td>
<td>All ages</td>
<td>Engineering and Technology</td>
</tr>
<tr>
<td>Science Studio!</td>
<td>Laura Zeller, External Relations</td>
<td>Saturday, Sunday</td>
<td>10:00 AM – 4:00 PM</td>
<td>Come and explore a science challenge with a hands-on activity. We provide the tools; you provide the rules!</td>
<td>All ages</td>
<td>Science Education</td>
</tr>
<tr>
<td>Sparkling Spuds and Powerful Pennies!</td>
<td>Johnson Controls Power Solutions Engineering Team</td>
<td>Saturday, Sunday, Sunday</td>
<td>10:00 AM – 4:00 PM, 11:00 PM – 4:00 PM</td>
<td>Learn how the chemical reactions that take place between two dissimilar metals and liquids contained in fruits or potatoes can generate electricity to power a very small device.</td>
<td>All ages</td>
<td>Engineering and Technology</td>
</tr>
<tr>
<td>STEM Genius Underwater Robotics</td>
<td>Yul Allen, Founder (STEM Genius)</td>
<td>Saturday, Sunday</td>
<td>10:00 AM – 4:00 PM</td>
<td>As we explore underwater robotics we will demonstrate how to design, build, and operate underwater remotely operated vehicles, or ROV’s.</td>
<td>All ages</td>
<td>Engineering and Technology</td>
</tr>
<tr>
<td>Studying How The Brain Reads</td>
<td>Bethany Sussman, (Communicative Sciences and Disorders)</td>
<td>Sunday</td>
<td>11:00 PM – 4:00 PM</td>
<td>Discover hands-on how we study the neural basis of language and reading—from how we test reading and language to how we investigate the brain!</td>
<td>All ages</td>
<td>Science Education</td>
</tr>
<tr>
<td><strong>Take-A-Part</strong></td>
<td><strong>Scientific Discipline</strong></td>
<td><strong>Recommended Age Range</strong></td>
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<tr>
<td>Nick Kwiatkowski, (Lansing Makers Network)</td>
<td>Engineering and Technology</td>
<td>All ages (kids to adults)</td>
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<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
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<tr>
<td>Come to our deconstruction lab sponsored by Lansing Makers Network and take apart discarded electronics destined for recycling!</td>
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<thead>
<tr>
<th><strong>Telescope Buying Guide</strong></th>
<th><strong>Scientific Discipline</strong></th>
<th><strong>Recommended Age Range</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>John French, Production Coordinator (Abrams Planetarium)</td>
<td>Physics, Astronomy, and Chemistry</td>
<td>All ages (kids to adults)</td>
</tr>
<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
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<tr>
<td><strong>Location:</strong> Abrams Planetarium</td>
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<tr>
<td>Ever wonder which is the best telescope to buy? Join us at our table to get all your questions answered.</td>
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<tr>
<th><strong>The Power in Produce</strong></th>
<th><strong>Scientific Discipline</strong></th>
<th><strong>Recommended Age Range</strong></th>
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</thead>
<tbody>
<tr>
<td>Michigan Science Center: Charles Gibson, Outreach Coordinator; Michael Mroz, Outreach Educator; Jennifer Kanyo, Educator</td>
<td>Science Education</td>
<td>All ages (kids to adults)</td>
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<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
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<tr>
<td>Harness the chemical energy within different types of produce to power up a light bulb, turn on a calculator, or make a buzzer buzz!</td>
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<tr>
<th><strong>The Science of Imagination</strong></th>
<th><strong>Scientific Discipline</strong></th>
<th><strong>Recommended Age Range</strong></th>
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</thead>
<tbody>
<tr>
<td>Joy Baldwin, Program Director (REACH Studio Art Center)</td>
<td>Arts, Culture, and Design</td>
<td>All ages (kids to adults)</td>
</tr>
<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM</td>
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<tr>
<td>Visit REACH Studio Art Center and learn how art is integral to applied science, expands scientific thinking, and makes science even more fun!</td>
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<thead>
<tr>
<th><strong>The Southern Astrophysical Research (SOAR) Telescope</strong></th>
<th><strong>Scientific Discipline</strong></th>
<th><strong>Recommended Age Range</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MSU’s Window to the Universe</td>
<td>Physics, Astronomy, and Chemistry</td>
<td>All ages (kids to adults)</td>
</tr>
<tr>
<td>Edwin Loh, Professor (Physics and Astronomy)</td>
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<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM • Sunday, 11:00 PM – 4:00 PM</td>
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<tr>
<td><strong>Location:</strong> Biomedical Physical Sciences Building, Room 1404</td>
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<tr>
<td>Stop by and view images from the Southern Astrophysical Research (SOAR) telescope, MSU’s window to the Universe.</td>
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<tr>
<th><strong>TREES</strong></th>
<th><strong>Scientific Discipline</strong></th>
<th><strong>Recommended Age Range</strong></th>
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</thead>
<tbody>
<tr>
<td>Making a World of Difference One Planting at a Time</td>
<td>Plant and Animal Sciences</td>
<td>All ages (kids to adults)</td>
</tr>
<tr>
<td>Sahar Haghighat, Doctoral Student (Forestry)</td>
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<tr>
<td><strong>Time:</strong> Saturday, 10:00 AM – 4:00 PM</td>
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<tr>
<td>Trees are important to many different aspects of our lives and nature. Come roll up your sleeves and make a difference when you plant your own tree!</td>
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<tr>
<td>Event</td>
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<td>Location</td>
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<tr>
<td>University of Michigan Museum of Natural History Mini-Dome</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
<td>Abrams Planetarium</td>
</tr>
<tr>
<td>Matt Linke, Planetarium Manager (University of Michigan Natural History Museum)</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Explore the Universe up close and personal with a mini-planetarium dome in the Abrams Planetarium Lobby.</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Water Bugs and Water Quality</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Darren Bagley, 4-H Youth Development Programs (MSU Extension)</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Observe the creatures that might be living in a stream near you and find out how they help you determine if the water is clean or polluted!</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>What’s Poppin’ with Corn?</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Agro-Culture Liquid Fertilizers: Rebecca Gulliver, Outreach and Education Intern; Burt Henry, Outreach and Education Manager</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Participants will gain a range of knowledge about corn, including different types, corn uses, and corn production.</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Why Do Some Things Stick Together While Others Don’t?</td>
<td><strong>Sunday, 11:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Renee Bayer, Associate Director for Engagement (CREATE for STEM Institute); Angie Kolonich, Graduate Student (Curriculum, Instruction, and Teacher Education); Chris Hannaford, Graduate Student (Educational Psychology); Li Ke, Graduate Student (Teacher Education); Nancy Duchesneau, Graduate Student (CREATE for STEM Institute)</td>
<td><strong>Sunday, 11:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Objects interact with each other over distances if one is “charged.” Use various materials to find out how charged and neutral objects interrelate.</td>
<td><strong>Sunday, 11:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Wild Woldumar</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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<tr>
<td>Kevin Wernet, Program Director (Woldumar Nature Center)</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
<td></td>
</tr>
<tr>
<td>Can you name all five vertebrate animal groups? Get hands on with animal skins, skulls, and shells to explore these native Michigan animals.</td>
<td><strong>Saturday, 10:00 AM – 4:00 PM</strong></td>
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</tbody>
</table>
AMAZING Discussion Panels!
A group of experts at one time!

Unexpected Science!
Thursday, April 16, 7:00 PM – 8:30 PM
Location: BPS Rm 1415

Citizen Science!: How Curious Citizens Contribute to Research Around the World
Saturday, April 18, 11:00 AM – 12:30 PM
BPS, Rm 1415

Blue Sky Science: What is the Role of Curiosity in Science?
Saturday, April 18, 1:00 PM – 2:30 PM
BPS Rm 1415

Science and the Movies
Sunday, April 19, 11:00 AM – 12:30 PM
Abrams Planetarium

Innovations in Renewable Energy
Sunday, April 19, 1:00 PM – 2:30 PM
Chemistry Building, Rm 138

Edible Michigan—We’re Number 1!
Sunday, April 19, 2:00 PM – 3:30 PM
BPS Rm 1415

Science of Michigan Presentations!

Michigan Bird Sounds
Saturday, April 18, 10:00 AM – 10:45 AM
MSU Museum Auditorium

Grand Slam of Michigan Turtles
Saturday, April 18, 10:00 AM – 4:00 PM,
Sunday, April 19, 11:00 AM – 4:00 PM
BPS, Rm 1425

Science In State Government: Your Tax Dollars at Work!
Saturday, April 18, 11:00 AM – 11:45 AM
Chemistry Building, Rm 109

Fire, Water, and Ice: Michigan’s Geological History
Saturday, April 18, 12:00 PM – 12:45 PM,
Sunday, April 19, 2:00 PM – 2:45 PM
MSU Museum Auditorium

Spring Ephemerals
Saturday, April 18, 1:00 PM – 1:45 PM
W.J. Beal Botanical Garden, max group size of 40

Moving Beyond a Shotgun Approach: Addressing Invasive Species in Michigan
Saturday, April 18, 2:00 PM – 2:45 PM
BPS, Rm 1400

The Geography and Evolution of Sand Dunes Along the Eastern Shore of Lake Michigan
Saturday, April 18, 3:00 PM – 3:45 PM
Biomedical Physical Sciences Building, Rm 1420

Building Sustainable Communities in Michigan
Sunday, April 19, 1:00 PM – 1:45 PM
Biomedical Physical Sciences Building, Rm 1415

Spring Discovery Walk
Sunday, April 19, 2:00 PM – 2:45 PM
Harris Nature Center, 3998 Van Atta Rd., Okemos

The Tree Doctor: Diagnosing and Managing Michigan Trees Maladies
Sunday, April 19, 12:00 – 12:45 PM
Biomedical Physical Sciences Building, Rm 1415
Date: Sunday, April 19, 2015
Time: 12:00 PM – 5:00 PM

Visit sciencefestival.msu.edu for location information and updates!

Andrew Humphrey’s Wonderful World of Weather and Science
Learn about meteorology and forecasting weather from WDIV’s own Andrew Humphrey.

Discover the Fascinating Geology of Michigan!
Dr. Charles Barker of Oakland Community College Dept. of Natural Science, talk, demonstration and book signing.

Do It Yourself Science: Research Opportunities in Magnetic Resonance
DO Science with the SMART Center and Dr. Reef Morse.

Genomics: Why Are We the Way We Are?
Presented by CREATE for Stem.

Hands On Engineering
Presented by DAPCEP (Detroit Area Pre-College Engineering Program)

Inspiriting Minds: African Americans in Science and Technology
Special Exhibit, Free admission during the MSU Science Festival Detroit Day only!

Recycle-tastic in Detroit!
Discover how easy it is to practice the three R’s: Reduce, Reuse, Recycle! With Green Living Science.

Reginald Punnett, Chicken Investigator
Learn about the first genetic studies with live chickens from MSU Extension experts.

Research on Belle Isle
Presented by research students from the Henry Ford Academy: School for Creative Studies.

Salt: The Science and History of Detroit Salt!
Presented by The Detroit Salt Company.

Science at the Michigan Science Center!
4:00 PM – 6:00 PM admission is free with a Festival flyer.

The 48217 Project
Presented by research students from the Henry Ford Academy: School for Creative Studies.

What’s in YOUR Water?
Unraveling the Great Blue Mystery
See what’s hidden in our water by using biology and chemistry with Michigan’s Department of Natural Resources.

Where Words Fail...How Music Speaks!
Dr. Jody Stark explains how music impacts our brains and behavior.

Vehicle Technology
Students from Heroes Alliance demonstrate electric and solar vehicle technologies.

These events are generously sponsored by:
Presentation Schedule

Vet-A-Visit
Saturday, March 28, 9:00 AM – 3:00 PM
MSU College of Veterinary Medicine

Soda Science
Saturday, April 11
Michigan Historical Center, (museum admission: $2–$6)
After the end of the Civil War, Detroit pharmacist James Vernor concocted a new drink—the ginger ale that still bears his name. Find out what makes soda so delicious and create your own taste sensation.

Butterflies in the Garden
Wednesday, April 15, Thursday, April 16 & Friday, April 17, 2:00 PM – 4:00 PM, Saturday, April 18 & Sunday, April 19, 10:00 AM – 4:00 PM
C102 Plant & Soil Sciences

Small Animal Day
Saturday, April 18, 9:00 AM – 1:00 PM
MSU Pavilion
($3) Milk a cow, watch horse races, hold a baby chick and meet other animals!

Spring Plant Sale
Saturday, April 18, 9:00 AM – 4:00 PM & Sunday, April 19, 10:00 AM – 3:00 PM
Horticulture Greenhouses

Combinatorial Trigonometry (and a method to DIE for)
Saturday, April 18, 4:10 PM – 5:00 PM
B122 Wells Hall
Enjoy advanced mathematics? You may want to check out this special seminar. A minimum of high school calculus is recommended.

MSU Engineering Design Day
Friday, May 1
See website for details.

Science Olympiad
Saturday, May 2
See website for public hours.

Deep-Play: Creativity in Math and Art Through Visual Word Play
Through June 30 (visit website for hours)
MSU Museum
Stand at the intersection of math, science, art, and fun! Visit the MSU Museum website for more information.

Evolution in Action gallery
A long-term exhibit (visit website for hours)
MSU Museum
Discover evolution research happening right here at MSU, from bacteria to hyenas, even digital evolution!

The Hall of Animal Diversity and Habitat Hall
A long-term exhibit (visit website for hours)
MSU Museum
Long-term displays of a wide variety of animals and their habitats from around the world, including those extinct favorites—dinosaurs!

Hall of Evolution
A long-term exhibit (visit website for hours)
MSU Museum
Take a journey back in time to explore ancient plant and animal life through fossils and illustration.

Howl at the Moon ($3)
Spring Discovery Walks (Free), Bird Watching in Our Parks (Free), Weekday Wildflower Walks ($3). For more information visit the Harris Nature Center website.
FESTIVAL ACKNOWLEDGEMENTS

SCIENCE FESTIVAL TEAM

Renee Leone
Co-founder and Coordinator

Katherine Hagman
Science Festival Assistant

Roxanne Truhn Witcher
Science Festival Assistant

CORE CONSULTING TEAM

Hiram E. Fitzgerald
University Distinguished Professor, Psychology; Associate Provost for University Outreach and Engagement, Co-Founder, MSU Science Festival

Jena Baker-Calloway
Director, MSU Detroit Center and Lead Organizer for Science Festival Detroit Day
University Outreach and Engagement

Burton A. Bargerstock
Director, Communication and Information Technology; Director, National Collaborative for the Study of University Engagement
University Outreach and Engagement

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University Outreach and Engagement

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Associate Director
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University Outreach and Engagement

Carla Hills
Communications Manager
Communication and Information Technology
University Outreach and Engagement

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Research Assistant
Radiology Osteopathic Medicine

Teresa Clark
Graduate Student
Plant Biology

Zachary Constan
Engineering/Accelerator Physicist
National Superconducting Cyclotron Lab

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Event Coordinator
Communication and Information Technology
University Outreach and Engagement

Julie Ann Fick
Specialist
MSU Museum

James Ives
Chairperson
Forestry

Norman Keith Lownds
Associate Professor
Horticulture

Miles McNall
Research Specialist
Community Evaluation and Research Collaborative

Michael R. Mitchner
University Events Coordinator
Custodial Services

Patrick Morgan
Outreach
Physics and Astronomy

Theresa Silm
Senior Extension Educator
Extension Children and Youth

Shannon Schmoll
Planetarium Director
Abrams Planetarium
# LOGISTICS TEAM

**UNIVERSITY OUTREACH AND ENGAGEMENT**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Department</th>
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<tbody>
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<td>Renee Zientek</td>
<td>Director</td>
<td>Center for Service-Learning and Civic Engagement</td>
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# UNIVERSITY DEVELOPMENT

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<tr>
<th>Name</th>
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<th>Department</th>
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<tbody>
<tr>
<td>Larry Wallach</td>
<td>Development Officer</td>
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# THANK YOU TO OUR PUBLIC SESSION GUEST PRESENTERS

- Agro-Culture Liquid Fertilizers
  - St. Johns, MI

- Burgdorf Winery Haslett, MI

- Capital Area District Libraries Lansing, MI

- CCHF Emory University
  - Detroit, MI

- Cranbrook Institute of Science
  - Bloomfield Hills, MI

- Denver Museum of Nature and Science
  - Denver, CO

- Detroit Observatory
  - Detroit, MI

- East Lansing Public Library
  - East Lansing, MI

- Harper’s Restaurant and Brewpub
  - East Lansing, MI

- Harris Nature Center
  - Okemos, MI

- Harvey Mudd College
  - Claremont, CA

- Impression 5
  - Lansing, MI

- International Dark Sky Park- Headlands
  - Mackinaw City, MI

- Lansing Community College
  - Lansing, MI

- Lansing Makers Network
  - Lansing, MI

- Library of Michigan
  - Lansing, MI

- Michigan Science Center
  - Detroit, MI

- Montessori Childrens House
  - Lansing, MI

- Montessori Radmoor
  - Okemos, MI

- Nature Discovery
  - Williamston, MI

- Reach Studio Art
  - Lansing, MI

- Scheer Genius
  - Detroit, MI

- Sleepwalker Spirits and Ale
  - Lansing, MI

- STEM Genius
  - Detroit, MI

- University of Michigan Museum
  - Ann Arbor, MI

- University of Michigan Planetarium
  - Detroit, MI

- Woldumar Nature Center
  - Lansing, MI
PARTICIPATING MSU UNITS

- Abrams Planetarium
- Andrew Humphrey
- Anthropology Department
- BEACON
- Beal Botanical Garden
- Biochemistry and Molecular Biology Club
- Biosystems and Agricultural Engineering
- Broadcasting Services
- Cell and Molecular Biology
- Center for Advanced Microscopy
- Center for Integrative Studies in the General Sciences
- Center for Systems Integration and Sustainability
- Chemical Engineering and Materials Science Department
- Chemistry Department
- College of Agriculture and Natural Resources
- College of Osteopathic Medicine
- College of Osteopathic Medicine Admissions
- College of Veterinary Medicine
- Communicative Sciences and Disorders Department
- Counseling, Educational Psychology, and Special Education Department
- CREATE for STEM Institute
- Curriculum, Instruction and Teacher Education Program
- Diagnostic Center for Population and Animal Health
- Electrical and Computer Engineering Department
- The Eli and Edythe Broad Art Museum
- English Department
- Entomology Department
- Fisheries and Wildlife Department
- Forensic Biology Program
- Forestry Department
- Geography Department
- Geological Sciences Department
- Human Development and Family Studies: Child Development Lab
- Infrastructure, Planning and Facilities
- Institute for Cyber-Enabled Research
- Institute of Water Research
- Integrative Biology
- IPF and Architectural Service
- James Madison College
- Julian Samora Research Institute
- Kellogg Biological Station
- Kinesiology Department
- Lyman Briggs College
- Mathematics Department
- Media and Information Department
- Media and Information Department
- Microbiology and Molecular Genetics Department
- MSU Demmer Center
- MSU Extension Michigan Natural Features Inventory
- MSU Extension: Early Childhood Education
- MSU Geology Club
- MSU Herbarium
- MSU Library
- MSU Museum
- MSU Science Theatre
- MSU Vermicomposting
- Music Department
- National Superconducting Cyclotron Laboratory
- Neuroscience Department
- Office of Campus Sustainability
- Osteopathic Surgical Specialties
- Philosophy Department
- Physics and Astronomy Department
- Physiology Department
- Plant Biology Department
- Plant Research Laboratory
- Plant Soil and Microbial Sciences
- Radiology Department
- RCAH Center for Poetry
- Writing, Rhetoric, and American Culture
- Zoology Department

COMMUNICATION PARTNERS

- All our presenters
- Area schools
- Capital Area District Library
- City of East Lansing—Michigan Library
- East Lansing Public Library
- Greater Lansing Visitors and Tourist Bureau
- HOMtv
- Lansing, E. Lansing and Detroit Area Community Centers
- Lansing Regional Chamber of Commerce
- Science Festival Alliance
- United Way
- Wayne State University Press
- WILX
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- Grand Traverse Pie Company
- Meijer, Okemos
- Michigan Athletic Club
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Thank You for Supporting Science In Michigan!

Thank you to all our school program presenters!

- Department of Kinesiology—Ryan Moran
- East Lansing Public Library—Lauren Douglass
- MSU Abrams Planetarium—Shannon Schmoll, John French, and Shane Hovatin
- MSU Bug House—Gary Parsons, Bernice DeMarco
- MSU College of Communication Arts and Sciences—Amanda Krueger
- MSU College of Veterinary Medicine—Maria Iliopoulou, Kari Storm, SAMY
- MSU Dairy Club, MSU Equine Club
- MSU Department of Anthropology and Campus Archaeology—Kate Frederick
- MSU Department of Fisheries and Wildlife—Sarah Plantrich
- MSU Department of Forestry—Richard Kobe and Scott Stark
- MSU Department of Physiology—Anthony Paganini
- MSU Diagnostic Center for Population and Animal Health—Kristy Mietelka
- MSU Edythe and Eli Broad Art Museum—Lana Stigura
- MSU Institute for Cyber-Enabled Research—Taylor Lundgren and Kelly Osborn
- MSU Museum—Julie Fick and Abigail Gray
- MSU National Super Conducting Laboratories—Zach Constan
- MSU Surplus Store and Recycling Center—James Ives and Emily Wilson
- MSU Tree Research Center—Paul Bloese and Randy Klevickas
- PhotosynQ—Geoff Rhodes, Greg Austic, Robert Zegarac, Sebastian Kuhlgert, Dave Kramer
- Preuss Pets—Nikki Mitchell
- U.S. Fisheries and Wildlife Service—Paul Charland
- Woldumar Nature Center—Kevin Wernet

Thank you to all our volunteers!
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Looking at Science Through New Lenses: How Parents and Teachers Can Cultivate Curiosity, Creativity and Excitement
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