

MAINE SCIENCE FESTIVAL



Bangor, ME
March 20-24

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mainesciencefestival.org

It is my extreme honor to welcome you to the 9th annual 2024 Maine Science Festival!

The MSF is a place where hundreds of scientists, researchers, organizations, educators, community and business leaders come together and get us excited about their areas of science, engineering, and technology and innovation. Shining a spotlight on that work that's being done right outside our doors here in Maine by our neighbors, colleagues, and friends is, in fact, the best job ever. One, of many, things that makes our festival unique is that everything you see here is science and research being done right here in Maine. We don't need to go beyond our state or our country to find ground breaking, cutting edge science. We have a wealth of it right outside our doorsteps!

For our headliner this year we are doubling down on our commitment to be Maine-based! We took one of our fan-favorite events - 5 Minute Genius™ - and made it our headliner because it is such a remarkable exploration of the many different ways science is done in Maine. You'll see short, fast paced talks from scientists and researchers who have 5 minutes to talk about a particular project or aspect of their work, then they take 5 minutes of questions before we move right along to the next speaker.

Each year, we're able to offer this five-day festival to the public at no cost, all thanks to the generosity of our sponsors and individual donors. Our funding depends entirely on their contributions and yours, enabling us to celebrate Maine's scientific achievements year after year. If each person contributes just \$5 or \$10, we'll be well-positioned to ensure the longevity of the MSF for years to come!

Our lineup for the 2024 MSF is as diverse as it is exciting. From space exploration to Maine's forests, from cutting-edge technology like AI to the wonders of ocean science, there's something for everyone. Explore sessions on nutrition, engineering, computer technology, the senses, music and sound, and even using video games to teach history! And trust us, this just scratches the surface of the incredible science you'll encounter.

So come join us and experience Maine science firsthand!

Angela Smith
Festival Director
Maine Science Festival



mainesciencefestival.org
#scienceiseverywhere

Welcome to the 9th Maine Science Festival!

The Maine Discovery Museum (MDM) is a regional and state resource with a 20+ year history of serving our community and our state. We help people of all ages discover the world around them through creative exploration and science.

In 2012, MDM's leadership decided to fill a deep need in Maine and began to build programming and expertise in the areas of science, technology, engineering, and math. 2012 is also the year that I learned about science festivals in general and decided to create one for Maine, resulting in the launch of the Maine Science Festival in 2015 - the first (and still only) science festival north of Cambridge MA. I am proud that the MSF is a program of MDM, and that two seemingly different decisions 12 years ago have resulted in programs and programming that have benefited Maine and Mainers. I'm especially proud that we have been able to keep the MSF accessible to all Mainers by keeping it free of charge.

Last fall I was fortunate to be part of a field trip visiting museums in Maine and Massachusetts, and one of our colleagues in Portland noted they have a goal of having 20% of their programs available at no or low charge to participants to maintain accessibility for all. I'm proud that we more than meet this goal. In fact, since 2014, MDM has provided 94% of our offsite mission-driven programming free-of-charge to participants, which includes our educational outreach to school students, families, science enthusiasts, and many rural and underserved kids in Maine. We do this without any government funding (city, regional, state, or federal), with all operations and programs covered by what we raise through admissions, fees, grants, and donations. Please consider supporting the MSF and MDM so we can continue to produce programs that encourage exploration, creativity, curiosity, and

I hope you enjoy every part of the MSF, and will continue to celebrate Maine science throughout the year, either with MDM and our programs or with the organizations you learn about at the MSF.

Kate Dickerson
Executive Director
Maine Discovery Museum





Janet T. Mills
GOVERNOR

STATE OF MAINE
OFFICE OF THE GOVERNOR
1 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0001

March 20, 2024

Dear Friends,

On behalf of the people of Maine, welcome to the Maine Science Festival! I am delighted that this unique celebration and exploration of science, technology, innovation, and the natural is back for its ninth year.

The Maine Science Festival celebrates our state's extraordinary homegrown scientific talent. With the University of Maine now recognized as top-tier research university, myriad institutions across Maine contributing to groundbreaking research, and bold innovators pushing the boundaries of possibilities on land, sea, and in the stars, our state is on the threshold of a new era of discovery.

Expanding our understanding and knowledge of science has perhaps never been more important – actions based on science, facts, and truth are vital to the health and future of our people and our planet. Whether it be through hands-on experiments or a night of science-themed trivia, I encourage you all to enjoy the abundance of learning, curiosity, and Maine innovation that this celebration offers.

Have a great festival!

Sincerely,

A blue ink handwritten signature of Janet T. Mills.

Janet T. Mills
Governor



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Welcome to the 9th Annual Maine Science Festival.

With over 70 events and activities, MSF is a five-day extravaganza of stretching your mind, muscles and emotions. Your love of science should explode!

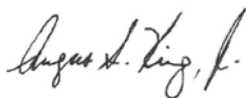
With events showcasing Maine's forests, the upcoming solar eclipse, AI, the Gulf of Maine, and of course, how to become a genius in 5 minutes!...the list goes on and on.

The Maine Science Festival truly is a celebration of the great talent and potential we are cultivating here in our state. From the world's premier research institutions to its top scientists to dedicated educators and students, these five days give us the ability to show off our best and brightest!

Maine also is fortunate to have the resources and expertise to explore, discover, and teach the next generation about both the importance and the excitement of STEM learning.

We are living in an exciting time of harnessing data and intelligence to reach new heights. At the Maine Science Festival, let us commit to curiosity and to a lifetime of learning – and celebrate all that Maine has to offer.

Enjoy this spectacular festival!



Angus S. King Jr.

United States Senator

AUGUSTA
40 Western Avenue, Suite 412
Augusta, ME 04330
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Bangor, ME 04401
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Susan Collins

March 20, 2024

Ms. Angela Smith
Director
Maine Science Festival
74 Main Street
Bangor, ME 04401

Dear Friends,

I am honored to be one of the many voices that welcome you to the 2024 Maine Science Festival.

This exciting event offers a wide range of activities for Mainers of all ages to experience and learn about different types of science. I hope you all enjoy the festival and take advantage of the many educational opportunities it presents.

Again, have a great festival, and best wishes.

Sincerely,

A handwritten signature in blue ink that reads "Susan".

Susan M. Collins
United States Senator

*United States Senate
Washington, DC 20510-1904*



CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES

March 20, 2024

Dear Friends,

Welcome to the 2024 Maine Science Festival! I applaud the entire team for their dedicated efforts in organizing this year's event and for making this such an inviting, educational collaboration.

The Maine Science Festival provides Maine people of all ages the opportunity to learn about and celebrate scientific exploration and innovation going on right here in our state. Over five days, and via more than seventy planned events and activities, the Festival brings together Mainers from all backgrounds to explore topics ranging from AI and emerging technologies, to cheesemaking, to next month's much-anticipated solar eclipse.

I am particularly happy to see that the Festival will be hosting sessions on the science of nutrition, something that affects all of us, and on the intersection of PFAS and agriculture, an issue critical to farmers here in Maine and one that I'm working hard to address in Congress.

Attendees of the Festival will also learn about the important research happening at the University of Maine's Composites Center and the Cooperative Extension; projects underway at innovative local organizations such as the Maine Space Grant Consortium; and advancements in the seaweed sector by Bigelow Labs, the University of New England, and local farmers such as Atlantic Sea Farms.

I am grateful to the Maine Science Festival team and their many event sponsors for showcasing the brilliance and creativity of our state's scientific community, as well as promoting economic growth and collaboration across our great state.

I wish you all an insightful and fun event!

Sincerely,

Chellie Pingree
Member of Congress



Jared Golden
Congress of the United States
2nd District of Maine

March 4, 2024

Dear Friends,

Welcome to the 2024 Maine Science Festival, Science is Everywhere! I would like to congratulate all those at the Maine Discovery Museum who have worked tirelessly to organize this event. The number of organizations and businesses that have come together to collaborate and share science is truly impressive.

Since launching in 2015, this festival has provided opportunities to showcase excellence and innovation while providing a unique opportunity for more than 60,000 Mainers to learn about scientific work happening in our great state. What's better is that you have the opportunity to learn about that work from the people who do that work right here in Maine.

On behalf of the citizens of Maine's 2nd congressional district, a big thank you to the festival's organizers for bringing this exceptional event to our community. I want to thank you for coming out to support it. My hope is that the 2024 festival will be even better than all of the previous ones!

Sincerely,

A handwritten signature in blue ink that reads "Jared F. Golden".

Jared F. Golden
Member of Congress

March 2024

Welcome to the 2024 Maine Science Festival!

We are honored and grateful that Bangor can host this wonderful event, in a region teeming with world-class research institutions and scientists pursuing groundbreaking work. The Maine Science Festival, a program of the Maine Discovery Museum, is the first and only science festival north of Cambridge, Mass. Bangor is an ideal place to celebrate science, technology, engineering and mathematics. Those attending the Maine Science Festival from March 20 to 24 have the opportunity to engage with leaders advancing industries like wood products, aquaculture, space exploration and climatology.

The festival this year includes more than 70 events and activities – with the Cross Insurance Center hosting many of them – and among the attractions are a Teen Tech Night, a Minecraft-inspired visit to Mars, the Maine Invention Convention, a look at the upcoming total solar eclipse, invisible ocean life, and wind turbines, too!

And don't overlook the scavenger hunt planned for downtown Bangor, the headliner 5 Minute Genius event at the Penobscot Theater Company, Exploration Stations at the Cross Center, and the Fundamentals of Cheesemaking downtown at Central Street Farmhouse. Educate Maine and Learning Undeclared also are collaborating to display the Maine Mobile BIOLAB, which engages students in the life sciences.

The festival is an opportunity for all ages to investigate the world around us while showcasing the City of Bangor and the region's scientific and engineering community. With close to 70,000 attendees since the festival launched in 2015, we hope to see attendance reflective of the remarkable effort of our region and state. What's more, all events are free of charge.

Speaking on behalf of the City and its residents, we feel fortunate to host the festival as it gives a platform to the talents of many local educators, business owners, students and entrepreneurs. The Maine Science Festival and Maine Discovery Museum are committed to fostering the next generation of scientists who will be at the forefront of new discoveries. Bangor is a lively community, from our vibrant downtown to many natural resources, and I hope you will take some time to explore our city while you're here.

With warmest regards,
Cara Pelletier
Bangor City Council Chair



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**Follow along with us! Visit us on
Facebook, Twitter, and Instagram.
#scienceiseverywhere
#MSF2024**

**To find out more visit:
mainesciencefestival.org**





GENERAL INFO & FAQ'S

Schedule Changes - Please note that all events are subject to change. Be sure to check our website or social media for the most up-to-date information.

Suitability key:

Families-  Middle School-  High School-  Adult- 

Within the program event pages we will do our best to note the best suited audience for programming provided. Please reference the graphics above and keep your eyes out for any special delineation like 21+ or 10+.

What is an MSF Showcase Event?



Maine Science Festival Showcase events are events that happen every year, with new presenters, activities, and experiences for festival goers. Showcase events are a mix of dynamic presentations, hands-on activities, and workshops that provide festival goers with a deep dive into the science happening in Maine. If you are able to attend only a few MSF events, the Showcase events are the ones to catch.

Where are the events?

All MSF events are held in, and around, Downtown Bangor. On Saturday, March 23rd, all daytime events will be held at the Cross Insurance Center.



Imagination leads to innovation.

Exploring. Experimenting. Tinkering. Testing. They're the qualities of an imaginative mind — and an innovative one. It's why MTI is proud to sponsor the Maine Science Festival. We believe events like this will help inspire the next generation of creative entrepreneurs, innovative ideas and impactful businesses here in Maine.

Go to **MaineTechnology.org** to discover how MTI supports new ideas that grow and diversify Maine's economy.



MSF SCIENCE TRIVIA NIGHT WITH MAINE PUBLIC

*Seasons, Downunder Club,
427 Main Street, Bangor*

6:30-8pm



It's back! Join fellow trivia players for a night of science trivia created especially for the Maine Science Festival! This year we are teaming up with the Maine Public News & Brews team for an even bigger night of fun!

Event type: *trivia*

Moderator: John Thompson, *University of Maine Department of Physics and Astronomy*

WEDNESDAY, MARCH 20

Join the Maine Masonic College
March 24th for
The Celebration of Arts and Sciences
at the
Versant Power Astronomy Center & Jordan
Planetarium.
9am-2pm with programs running throughout
the day.

Maine Masonic College is made possible by
the Maine Masonic Charitable Foundation



SCIENCE ON TAP PRESENTS: THE SENSES

Mason's Brewing Company
15 Hardy Street, Brewer, ME

6:30-8:00pm



Sometimes the best learning takes place in a bar. Relaxed atmospheres.....big science.... Science on Tap is a 21+ event.

Join us this year for a glimpse of the science of the senses. Nimesha Ranasinghe will be doing a live demonstration, presentation, and a discussion around computing + flavor, and Justin will be showcasing some VEMI projects that utilize haptics to augment visual information and provide accessible solutions. He'll also discuss virtual reality applications, dynamic mobile applications, and how haptic sensations can be produced in mid-air.

Moderator: Jacqui White PhD, Director, Center for Biometric Analysis, Deputy Director, Scientific Services JAX MG, The Jackson Laboratory

Presenters: Nimesha Ranasinghe, Assistant Professor of Spatial Computing & MIM Lab; Justin Brown, Laboratory Research Manager, VEMI Lab, University of Maine

Event type: Presentation

FIELD TRIP DAY

Cross Insurance Center

9:45am-12:45pm



FRIDAY, MARCH 22

Our Field Trip Day is for 7th & 8th grade students from schools in Maine, with the day's programming specifically designed for this age group. These events are limited to those schools who sign up in the preceding months. If you are interested in learning more about the 2025 Maine Science Festival Field Trip Day, or would like to be notified when sign-ups are open, please send an email to schools@mainesciencefestival.org. The Field Trip Day is provided free-of-charge to the schools who attend.

Presenting organizations: *University of Maine, Husson Exercise Science, Educate Maine, bluShift Aerospace, Northeastern University's The Roux Institute, ReVision Energy, Maine Math and Science Alliance, Maine EPSCoR / University of Maine, UMaine ASCC, Bangor Makerspace, Maine Maritime Academy, USGS Maine Cooperative Research Unit / Wildlife, Fisheries, and Conservation Biology University of Maine, TIDC at the University of Maine, 1 Earth Composting, Owls Head Transportation Museum, University of Southern Maine - STEM Outreach, Versant Power, GE, Friends of Katahdin Woods & Waters, Katahdin Learning Project, UMaine AI, University of Maine - UM Space, Innovative Media Research and Commercialization Center, MaineHealth Institute for Research- Vector-borne Disease Lab, Fluid Imaging*

Sponsored by

**MAINE
DISCOVERY
MUSEUM**

The 2024 Friday Field Trip Day is full. Sign-ups for 2025 will open up to schools in Fall 2024 Please note: the field trip usually fills up within hours. Schools who sign up after it is full are put on a wait list for the following year and have a chance to register before we open it up to everyone.

Families-

Middle School-

High School-

Adult-

TECH NIGHT, PRESENTED BY PROJECT>LOGIN

Maine Discovery Museum, 74 Main Street

4:30pm-7:00pm



FRIDAY, MARCH 22

Hey students in grades 6-10 - are you ready to explore the exciting world of computers and information technology? Join us for Teen Tech Night, where you can learn, share, collaborate, and delve into cutting-edge software and web-based tools.

This year's workshops will feature a range of captivating sessions designed to spark your curiosity and creativity like robotics, cyber security and more!

Participants, please remember to bring your own laptop to this event. If you do not have access to a laptop, please email Shelby Bryant at shelby@educatemaine.org.

Teen Tech Night is a drop-off event, and a delicious pizza dinner will be provided at 6 pm for all participants. Don't miss out on this opportunity for maximum engagement and hands-on learning!

Sign up required: www.mainsciencefestival.org/2024-program, scroll own to Teen Tech Night

Event type: *Middle school workshops, hands-on activities, sessions*

Motus Wildlife Tracking

Presenter: Melissa Gallagher (Fields Pond Audubon Center)

The Motus Wildlife Tracking System (Motus) is an international collaborative research network that uses coordinated automated radio telemetry to track birds and butterflies. Learn more about how this technology works in the wild.

Fun Tech for Family and Friends

Presenter: Eric Eisaman

Get ready for an awesome adventure into the world of Micro:bits! Explore microbit.org, create cool apps with MakeCode Python, test them in the Micro:bit simulator, and deploy them to real Micro:bit V1 boards. Code, create, and conquer together!

Programming Space Flight

Presenter: Brianna Dym (The Roux Institute)

Pilot spheros--little gyroscopic robots that are wirelessly connected to a tablet device--around a map of the solar system using drag and drop programming blocks. Work in pairs: one programmer responsible for organizing the code and one engineer responsible for positioning and maintaining the Sphero bot itself.

LEGO Robotics

Presenters: Kim Stewart and Anna Martin (Maine Discovery Museum)

Learn more about LEGO Spike Robotics kits and code dancing robots and carnival rides.

MORE TECH NIGHT INFO ON NEXT PAGE!

TECH NIGHT CONTINUED

Swim Away! - Making an Underwater Chase Game in Scratch

Presenter: Ian Collins (MMSA)

In this session, students will create a video game in Scratch using block-based programming. We will begin by playing through a fully completed game and utilizing computational thinking to understand the various aspects of its design. Students will then begin designing their own games. In doing so, students will be able to design the characters (sprites) and backgrounds in their game or choose from a set of pre-designed sprites and backgrounds. Students will be guided through how to block code various aspects of the gameplay design they experienced at the beginning of the session and have a chance to replicate those design choices or modify them to suit their own game vision. At the end of the session, students will be able to publish and share their game with others or choose to continue developing the game on their own.

Understanding AI with Teachable Machine

Presenter: Ian Collins (MMSA)

In this session, participants will have a chance to develop their own training data set, test that set, and delve into issues of bias in the data selection process and the impacts those choices have on the model's outputs. Participants will be provided model data sets they can modify or they can create their own data set.

Drop-in Sessions

3D Coloring with Quiver

Presenter: Keileigh (Project>Login High School Intern)

Quiver, the 3D Coloring App uses Augmented Reality to bring coloring pages "to life". Come relax with some coloring and then watch Quiver's 3D AR animate your image!

Learn about the Maine App Challenge!

Sessions 1-3

Presenter: Kyle Severance (Tyler Technologies)

In cooperation with the University of Maine and Educate Maine Project>Login, Tyler's Maine App Challenge provides the opportunity for Maine students to explore the world of software design and development.

Created in 2015, this annual Challenge provides Maine students the chance to show off their skills and creativity by building a mobile application. Not only is this a unique way to develop abilities, but participants also have the chance to win valuable prizes, including scholarships totaling \$10,000!

FIRST Robotics Challenge

Presenter: Robotics Institute of Maine

Explore the world of Robotics and learn from students who are currently competing in the FIRST Robotics Challenge. FIRST = For Inspiration and Recognition in Science and Technology

Explore with Merge Cubes

Presenter: Nicholas Chouinard

Discover the wonders of human anatomy in a captivating drop-in session featuring Merge Cubes! Delve into the intricate structures of the human body as we explore stylized anatomy, emphasizing the importance of dissecting organisms to understand their biological makeup.

Bioscience Association of Maine (BioME)



BioME supports the life sciences community in Maine by organizing conferences, networking events, educational opportunities and advocating on behalf of our industry.

BIO ME
Bioscience Association of Maine


biomaine.org
The Voice of Maine's Life Sciences Community



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DISCOVERING A BRIGHTER TOMORROW AT THE JACKSON LABORATORY



For over 90 years, The Jackson Laboratory has propelled the state of Maine to the forefront of biotechnology and research. As a global leader, it is JAX's duty to find answers to human health's most pressing questions, unlocking a healthier, more vibrant future for generations to come.

JAX's commitment goes beyond the lab. Our nearly 1,800 Maine-based employees proudly support tens of thousands of Maine families and thriving businesses. With every scientific breakthrough, we strengthen Maine's position as a

cutting-edge biotech hub, attracting top talent and fostering a powerful, sustainable business ecosystem.

Join our vision for a healthier future. JAX is hiring talented Mainers, from engineers, to researchers, to electricians to support the vibrant Maine economy.

**Learn more at
www.jax.org/careers**



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EXPLORATION STATIONS - ENGAGE, EXAMINE, EXPERIMENT

Cross Insurance Center Ballroom

9:00am-4:00pm



Roll-up your sleeves and learn through various hands-on activities from scientists and practitioners around the state. Make sure to stop in and visit each activity, and see how science is everywhere!

- Video Games Teach History: Playing Europa Universalis IV** • UMaine
- Introduction to Textiles** • UMaine ASCC
- Exploring Creative Technologies: Learning by Doing** • Bangor Makerspace
- Skins, skulls, and fishy fun** • USGS Maine Cooperative Research Unit / Wildlife, Fisheries, and Conservation Biology University of Maine
- Bridge Building** • TIDC at the University of Maine
- E&I w/U and Me** • Bangor Makerspace
- Composting** • 1 Earth Composting
- Inspiring Tomorrow's Pioneers** • Owls Head Transportation Museum
- LEGO SPIKE Coding** • University of Southern Maine - STEM Outreach
- Power Town Demonstrator** • Versant Power
- The Importance of Water Quality: Citizen Science Project** • Friends of Katahdin Woods & Waters, Katahdin Learning Project
- Explore UMaine's Innovative Media Research and Commercialization Center** • Innovative Media Research and Commercialization Center
- Ticks of Maine** • MaineHealth Institute for Research- Vector-borne Disease Lab
- Safe Solar Viewing & Eclipse Watching** • Versant Power Astronomy Center
- Marble Run** • Girl Scouts of Maine
- The Science of Pharmacy** • Rho Chi Society Chapter - Husson University
- Stormwater Pollution Watershed Model** • Bangor Area Stormwater Group (BASWG)
- Hands-on activity** • Challenger Learning Center of Maine
- Guts! How we digest our food** • Southern Maine Community College
- Stream Smart Demo** • NOAA Fisheries
- How 2 internet: A live demo of web development, and cyber security** • Maine Hacker Club
- Tree Identification and Mystery box** • Great Pond Mountain Conservation Trust
- Obstacle Avoidance Using General Navigation Models on 4WD Rover** • UMaine AI
- Count the Nanobubbles** • University of Maine - UM Space
- Solar eclipse in your town** • Challenger Learning Center of Maine

Event type: *Hands-on*

MAINE DISCOVERY MUSEUM



Did you know you can Find a
tardigrade in the Bangor City
Forest?



CULTIVATE
curiosity

MAINE **DISCOVERY** MUSEUM

Downtown Bangor

mainediscoverymuseum.org

VEMI LABS PRESENTS - DUCK CHASE

Meeting Rooms A&B, Cross Insurance Center

10:00am-2:00pm



Embark on a wild Duck Chase at the Maine Science Festival! Find hidden codes, play mini-games, and unlock virtual goodies showcasing research projects from the VEMI Lab and the Howell Lab. Explore how we use autonomous vehicles, virtual reality, rainbows, and slippery surfaces to make the world a more inclusive and safer place to live. Plus, lucky winners snag exciting prizes along the way!

Presenter: VEMI Lab and Howell Lab, University of Maine

Event type: *Workshop*

HAM RADIO: EXPLORE A FUN COMMUNICATIONS HOBBY!

Meeting Room C, Cross Insurance Center

10:00-11:00am



Join us for a fun exploration of ham radio by the Pine State Amateur Radio Club here in Bangor. There will be a presentation with video, live demonstrations, and displays describing the fun and challenging hobby of amateur radio! We want to make it an enjoyable, immersive experience for people of all ages!

Presenters: Ed Paradis, *President, Pine State Amateur Radio Club*

Audience: middle school and up

Moderator: Anne Krieg AICP, *City of Bangor*

Event type: *Panel*

TERRAFORMING MARS IN MINECRAFT

Meeting Rooms 1&2, Cross Insurance Center

10:00-11:00am



Come explore a Minecraft simulation of Mars! Created by the “What-If Hypothetical Simulations in Minecraft” Project, you will be teleported to Mars, where there are a handful of existing structures. Collect data about how life on Mars would look; what is the gravity like? Is there harmful radiation? Is the surface a habitable temperature? What are the available materials? Then, from an inventory of materials both collected on Mars and shipped in from Earth, you can create your own Mars base!

Presenters: Brooke Bolduc, *University of Southern Maine STEM Outreach*

Audience: middle school & high school

Event type: *Workshop*

THE POWER OF WIND TURBINES

Meeting Room 5, Cross Insurance Center

10:00-11:00am



Young engineers will use our wind turbine kits to cover topics such as:

- How a wind turbine works to generate electricity.
- How to measure power output (voltage & amperage).
- How to store potential energy.
- Optimal blade design and testing.

Students will work with their own small wind turbine, multimeter, and more!

Presenters: Sarah Raymond-Boyan, *Challenger Learning Center of Maine*;

Kirsten Hibbard, *Challenger Learning Center of Maine*

Event type: *Hands-on*

Sponsored by:  **CENTRAL MAINE POWER**

MAINE INVENTION CONVENTION

Prefunction area, Cross Insurance Center

10:00am-2:00pm *awards 1:45pm



The Maine Invention Convention (a program of the Maine Discovery Museum) is a statewide competition that promotes innovative problem-solving and inventing by Maine middle school students. Students work with their peers and teachers to identify and solve problems using the Innovation Engineering process. At this event, students from each participating school compete for the top invention awards.

Moderator: Anna Martin, *Maine Discovery Museum*

Event type: *Presentations/competition*

MAINE'S FOREST AT THE FOREFRONT: EMERGING TOOLS, TECHNOLOGY, AND PRODUCTS FOR THE FOREST SECTOR

Meeting Rooms 3&4, Cross Insurance Center

10:00am-11:30am



This one-hour session will highlight recent advances that will help transform Maine's forest sector. Although often overshadowed by more iconic Maine products like lobsters and blueberries, Maine remains the most forested state in the US (89%) and an economy most dependent on the resource (5% of GDP, highest in US). The sector has seen major shifts in the last decade (e.g. mill closures, Covid disruptions, workforce challenge), but offers numerous strategic opportunities to achieve the state's economic, sustainability, and climate action priorities. This session will cross-sector experts to discuss new tools, technology, and products that could help Maine become a national leader in digital forestry that supports the production and utilization of renewable biomaterials for a variety of potential applications. A particular focus will be on the use of Big Data, AI, and remote sensing to better monitor the forest itself, while the science and technology for future applications of Cellulose Nanofiber (CNF) will also be highlighted.

Presenters: Dr. Aaron Weiskittel, *University of Maine Center for Research on Sustainable Forests*; Ian Prior, *Seven Islands Land Company*; Dr. Mehdi Tajvidi, *University of Maine*

Moderator: Kate Dickerson, *Maine Discovery Museum*

Event type: *Panel*

MUSIC & SOUND: INSTRUMENTS, TIMBRE, HARMONICS, & DISTORTION

Meeting Room D, Cross Insurance Center

11:15am-12:15pm



In this presentation, the concept of timbre will be introduced, and the physics behind how various musical instruments create their unique harmonic makeups will be investigated. Multiple forms of sound synthesis will be demonstrated, and a discussion of harmonic distortion will explore the defining sonic signature of the electric guitar.

Presenter: Eric Ferguson, *Husson University*

Moderator: MacKenzie R. Stetzer, *Department of Physics and Astronomy, University of Maine*

Event type: *Talk*

TOTAL SOLAR ECLIPSE - APRIL 8TH OF 2024

Meeting Rooms 1&2, Cross Insurance Center

11:15am-12:15pm



Join us to learn how to see the upcoming total solar eclipse on April 8th of 2024! This spectacular event has not taken place in Maine since 1963, and the next one is not until 2079 - so don't miss this one. A panel of speakers will discuss how and why eclipses take place, how to safely view them, and where to go for best viewing here in Maine!

Presenter: Shawn Laatsch, *Versant Power Astronomy Center*; John Meader, *Northern Stars Planetarium*; Larry Berz, *Lee Academy*; Nikita Saini, *University of Maine*

Moderator: Marissa Minor, *Versant Power*

Event type: *Presentation*

Sponsored by:



DO CHATBOTS WRITE ABOUT ELECTRIC SHEEP?: AI LITERACY

Meeting Rooms 1&2, Cross Insurance Center

12:30-1:30pm



This session by librarians Christopher Clark and Heather Perrone will cover the basics of AI literacy--what to know about AI tools, how to use them meaningfully, and how to evaluate tools and AI-generated content. We want to promote the useful aspects of AI while providing resources and skills for navigating it safely and effectively.

Presenter: Christopher Clark, *Fogler Library*; Heather Perrone, *Fogler Library*

Moderator: Carlo DiCelico, *Maine Masonic College*

Event type: *Presentation*

Sponsored by:



THE SCIENCE OF NUTRITION

Meeting Rooms 3&4, Cross Insurance Center

12:30-1:30pm



An introduction to nutrition, including the major nutrients and what comprises a healthy diet.

Presenter: Julia Sabet, PhD, *nutrition scientist*; Mona Therrien-Genest DCN, *Faculty University of Maine*, Megan Colletto-Norrad, PhD, RD.

Moderator: Kelly Pearson, *Northern Light Health Foundation & Maine Discovery Museum Board Member*

Event type: *Panel*

Sponsored by:



THE FUNDAMENTALS OF CHEESEMAKING



Central Street Farmhouse, 30 Central St., Bangor

1:00-2:00pm

Josh Parda, owner of CSF, will demonstrate how to make a simple and quick batch of fresh cheese, while sampling out cheese (or cheeses) made earlier in the day and discussing the science behind all kinds of cheeses.

Presenter: Josh Parda, *Central Street Farmhouse*

Event type: *Workshop*

VIDEO GAMES TEACH HISTORY

Meeting Rooms 1&2, Cross Insurance Center



1:45-2:45pm

The interactive and immersive quality of video games has helped make them wildly popular and profitable entertainment media. This session will explore how the ability of gamers to relive, alter, and explore a game world has implications on how we understand fundamental aspects of the human experience. For example, history-based video games raise rich questions about “agency,” the degree to which individuals shape their own future, in contrast with systematic trends. We will explore with the audience how video games might help us to think differently about the human experience.

Presenter: Chapman Hall, *University of Maine (Undergraduate Student)*, Liam Riordan, *University of Maine*

Moderator: Liam Riordan, *University of Maine*

Event type: *Presentation*

Sponsored by:



GULF OF MAINE OCEAN SCIENCE MINI-DOCUSERIES

Meeting Room D, Cross Insurance Center

2:45-3:45pm



In 2021, a team of ocean scientists went on a research expedition across the Gulf of Maine to learn more about this dynamic region. Join us for a series of documentary videos filmed and created by University of Maine students accompanied by live Q&A sessions with ocean scientists who were on the research cruise and are still working to understand how the ocean and climate have changed here, from the last ice age to the present day. Each video lasts between 3 and 8 minutes and features a different aspect of ocean research. Together, the video series will take participants on a journey of discovery guided by the scientists who are working to uncover how our environment can change in the past, present, and future. Hands-on activities will also be occurring during the docuseries, including a dig-for-fossils sand pit, microscope station with real specimens on display, and a game table featuring enlarged, 3D-printed microfossils.

Presenters: Katherine Allen, Jillian Herlinger, Madelyn Woods, Tommy Young, Devin Coffey, Lilly Braun, David Jakacky, *School of Earth and Climate Sciences, University of Maine*

Event type: *Workshop/Presentation*

FUTURE DRIVEN: A YOUTH CLIMATE STORY AWARDS

Meeting Room C, Cross Insurance Center

2:45-3:45pm



Future Driven: A Youth Climate Story, brought opportunity for high school students in Maine to tell climate stories in their communities. Join Maine Public at 2:45pm for the awards to the student finalists for Future Driven: A Youth Climate Story.

Presenter: Cory Morrissey & Sophia Wood, *Maine Public Broadcasting*

Moderator: Kim Stewart, *Maine Discovery Museum*

Event type: *Presentation*

SATURDAY, MARCH 23



5 MINUTE GENIUS™

2024 MSF HEADLINER 5 MINUTE GENIUS™



*Penobscot Theatre Company
131 Main Street, Bangor, ME*



7:30pm

5 Minute Genius™ features short, sharp talks by some of Maine's finest scientists with 5 minutes per talk, plus 5 minutes for questions. Presenting a sprint through some of the most remarkable, cutting-edge science in Maine - you will feel like a genius in no time! Want more? Stick around for a reception after the event at The Stage Door.

Presenters:

Kendra Balchelder, *WAVED Medical*

Eva Balog, *University of New England*

Greg Gavelis, *Bigelow Laboratory for Ocean Sciences*

Danielle Levesque, *University of Maine*

Anastasia Paulmann, *MDI BioLab*

Karyn Sporer, *University of Maine*

Basile Tarchini, *The Jackson Laboratory*

Lindsay Ware, *Science Dogs of New England*

Moderator: Kate Dickerson, *Maine Discovery Museum*

Event type: *presentations*

Sponsored by:



DOWNTOWN BANGOR SCAVENGER HUNT

START/FINISH at
Briar Patch, 27 Central Street, Bangor

10:00am-1:00pm



A downtown science scavenger hunt! Pick up your sheet/ information at the Briar Patch, get it time-stamped, and go find the science clues lead you to. Once done, return to the Briar Patch to get your finishing time stamp. The fastest finisher receives a prize, and all who finish will be entered into a drawing for a goodie bag. The hunt has to be completed between 10am-1pm.

Event type: *Games*

STORY TIME WITH THE GRAVITY TREE

Briar Patch, 27 Central Street, Bangor

11:00am-11:30am



It all started with a seed that grew into a tree adorned with an apple that fell right before Issac Newton's eyes! Join us for a special science-themed storytime at The Briar Patch featuring The Gravity Tree by Anna Crowley Redding, read by the author. Drop in, listen to the story and meet her!

Event type: *Read aloud*

UNVEILING INVISIBLE OCEAN LIFE AT BIGELOW LABORATORY

Chimera Coffee, 24 Broad St., Bangor

10:30am



Join us at 10:30am to hear from the scientists/artists behind this exhibition. The ocean is filled with microscopic organisms (a.k.a. microbes). From the oxygen we breathe to the quality of our seafood, we can't ignore the importance of microbes. There is still so much we don't understand about these tiny powerhouses and their impact on the planet. Because we can't see them, scientists have to get creative with how they study microbes. At Bigelow Laboratory we use a range of technology to help us see the invisible. Come explore this blue microscopic realm through our scientists' eyes.

Presenter: Ramunas Stepanauskas, Sarah Douglas, Shane Farrell, José A. Fernández Robledo, Maura Nimesto, Cath Mitchell, Pete Countway, Amanda Pinson, Dara Yiu, Melissa Rocker, Bigelow Laboratory for Ocean Sciences

Event type: *Exhibit*

PFAS AND AGRICULTURE - CURRENT RESEARCH ON PLANT UPTAKE

BookSpace, 48 Columbia St., Bangor

1:00-2:00pm



In this session, we will give an introduction to PFAS and how it came to be introduced in some agricultural soils in

Maine. We will also share the results of a recent research project where we worked with a commercial farm that had contaminated soils to test PFAS uptake into vegetables. Co-presenters will include UMaine researchers, graduate students, and farmers.

Presenter: Rachel Schattman, *University of Maine*; Alexandra Searce, *University of Maine*; Susan Hunter, *Hunter Farm, Unity*

Moderator: Kate Dickerson, *Maine Discovery Museum*

Event type: *Panel*

MSF PARTNER EVENT WITH MAINE MASONIC COLLEGE

Versant Power Astronomy Center & Jordan Planetarium

9:00am-2:00pm



Celebration of Arts and Sciences

9:00 - 10:20 A viewing of "Eclipse: The Moments of Wonder"

Description: Join us for an immersive view of eclipses, the most spectacular sights in the sky! Explore the nature of these special celestial alignments and get prepared to safely observe them. Experience the awe and wonder with stunning images of both solar and lunar eclipses captured by a world-renowned astro-photographer from locations around the globe. The program includes information on how to observe the April 2024 solar eclipse visible in Maine.

10:30 - 12:00 Associate Professor at University of Maine Justin Dimmel will present on "The Geometry of Starlight"

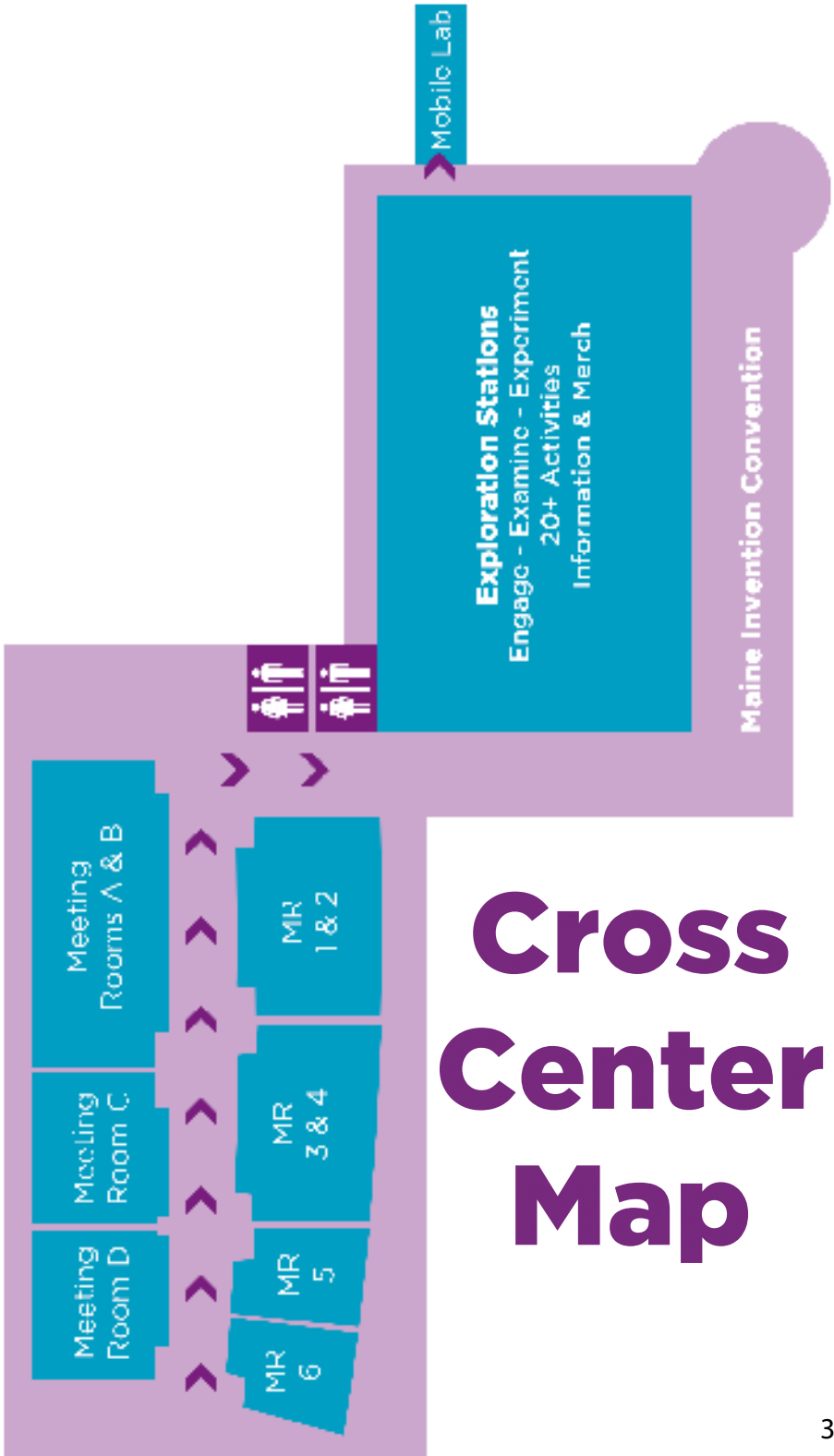
Description: This planetarium experience explores how ideas from plane geometry shape our visual experience of the sky.

12:00 - 12:30 Light Lunch

12:30 - 2:00 The University of Maine Honors College will have some of their students present their thesis for the audience.

Members of the public are encouraged to join and can stay for any or all of the three events happening at the Maine Masonic College's Celebration of Arts and Sciences.

Cross Center Map





Venue Map

MAINE SCIENCE FESTIVAL



Thank you for exploring and celebrating some of the amazing Maine science and people who make it happen. We will see you next March 10-23, 2025 for the 10th MSF!

Be sure to Like and follow us on social media!

Facebook:

www.facebook.com/mainesciencefestival

Twitter:

www.twitter.com/MEScienceFest

Instagram:

<https://www.instagram.com/mainesciencefestival/>

And don't forget to use our official hashtags:

#scienceiseverywhere

mainesciencefestival.org

The Maine Science Festival is grateful for the passion, expertise, and time of our presenters.

There's no way to celebrate Maine science without them.

Thank you!



MAINE SCIENCE FESTIVAL: LIKE A MUSIC FESTIVAL - BUT SCIENCE

The Maine Science Festival (MSF) showcases the science (and technology) happening in Maine, targeting the general public with events for all ages. Using forums, workshops, talks, art exhibits, film screenings, and hands-on activities, we produce events that focus on the science happening and being used in Maine.

The MSF is an independently funded program of the Maine Discovery Museum, and the first and only science festival in Maine (and north of Cambridge, MA). Launched in 2015, the MSF is a celebration of the national and world leading science by the Mainers who do it. We showcase the remarkable work happening in Maine daily with 70+ events and activities throughout five days, in Bangor, with all but the headliner event available free of charge.

In addition to our March festival, in September 2020, we launched the Maine Science Podcast, a conversation with a Mainer working in science, allowing us to shine a spotlight on science in Maine year round (<https://bit.ly/MSPepisodes>).

#SCIENCEISEVERYWHERE



The Maine Science Festival exists so we can shine a spotlight on the people and organizations in our state who are using their passion and love of science to make Maine and the world better. Since 2015, we have delighted in *bringing Maine science to the public*.

While the MSF does not charge for any event other than the headliner, that doesn't mean there isn't a cost. We raise money all year to keep the MSF available to all. It's important the exploration and innovation that happens here in Maine daily is available to Mainers of all ages, regardless of their income or ability to pay. We want you to be inspired by what you experience at the Maine Science Festival and we do not want to hide it behind a paywall.

Many science festivals around the country charge anywhere from \$10-30 for just one event like Tech Night or 5 Minute Genius; we do not. If you'd like to ensure that this model continues - that we can keep the Maine Science Festival accessible to all - we could use your support. We have a suggested donation of \$5 if you attend the MSF, but we welcome any amount that works for you. Please find one of our donation buckets at the MSF, or donate online at <https://www.mainsciencefestival.org/donate> or use the QR below.

Thank you!

**Help us keep the MSF
strong and DONATE:**



THANK YOU TO OUR SPONSORS

