



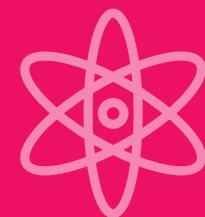
# Education at **MSI**



## 2023-2024 Program Guide



museum of  
**science+industry**  
chicago



# Education Offerings

Unlock the boundless potential of young minds through STEAM (Science, Technology, Engineering, Art, and Math) learning experiences. Our immersive programs go beyond the classroom with expertly designed hands-on experiences. We empower the next generation of students, families, educators, and communities with the resources and expertise to inspire curiosity, foster creativity, and propel future leaders into the world of STEAM. For more information, contact [Learning@msichicago.org](mailto:Learning@msichicago.org)





# Professional Development

## OpenSciEd Curriculum Launch

Empower educators with the transformative potential of the OpenSciEd middle school curriculum, which fosters student-driven sensemaking about scientific phenomena and real-world problems.

## Foundations of NGSS

This mini course is tailored to seamlessly weave Next Generation Science Standards (NGSS) into teaching regardless of grade level. Designed for educators who have some familiarity with NGSS.

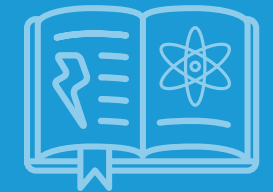
## Everything You Always Wanted to Know about NGSS (but were afraid to ask!)

Teachers will dive into the Next Generation Science Standards, exploring why they are essential, the necessary instructional shifts, the structure of the standards, and three key classroom features for successful implementation.

## Air: The Atmosphere Outside and Inside Your Classroom | Title I schools are eligible for scholarships.

Empower yourself to champion Next Generation Science instruction. Our course centers on three pedagogical pillars – equity-minded instruction, student-centered learning, and supporting scientific sensemaking – to understand climate, atmosphere, and our relationship with the Earth.

At MSI, our professional development is carefully crafted to meet educators where they are. Whether you're a seasoned science expert or new to STEM, we offer a range of options, including tailored training, to address your needs.



## STEM 101

Tailored to your educators' STEM immersion level, this customized PD introduces the engineering design process, 5 E's, and the seamless integration of 21st-century skills into your curriculum.



# Whole School Transformation

## Science Leadership School Partners

- A three-year program with approximately 40 hours of in-person (at MSI) and virtual work sessions per year for teacher leaders. Supporting administrators will attend 6 hours of work sessions. A cross-disciplinary team of 6-10 teachers will be required to set aside at least 14 hours of meeting time at their school.
- Participants: K-8 schools; application required from a designated teacher leader and supporting administrator.
- Recruiting for the 2024-2025 school year will begin in January 2024.

## Science Leadership School Partners Premium

- A three-year program with approximately 60 hours of MSI in-person and virtual work sessions per year for teacher leaders. Supporting administrators will attend 6 hours of work sessions. A cross-disciplinary team of 6-10 teachers will be required to set aside at least 14 hours of meeting time at their school.
- Participants: K-8 schools; application required from a designated teacher leader and a supporting administrator.
- Four buses per school for field trips, and priority access to other on-demand MSI programs (such as Curiosity Stations and Learning Labs).

Our three-year program offers a strategic roadmap to develop and implement a school-wide STEM transformation. MSI educators partner with your teachers to evaluate your current STEM initiatives, then develop a pathway to STEM integration.



**Recruiting for the 2024-2025 school year will begin in January 2024.**



# Makerspace Integration & Training

## MAKE\_X

This program trains educators how to leverage makerspaces and other creative environments interwoven with design thinking to achieve a wide variety of educational goals. The sessions are organized into different modules, covering.

- MSI Grid System
- Makerspace Strategy
- Paper Engineering
- Vinyl Cutting
- 3D Printing
- Digital Embroidery

To learn more about Make\_X, including pricing and logistics, contact us at [learning@msichicago.org](mailto:learning@msichicago.org)



MSI's Make\_X program empowers K-12 educators to leverage makerspaces and other creative environments to fulfill diverse educational objectives through Design Thinking, hands-on inquiry-based learning, and use of The Grid - a makerspace and project management tool developed by MSI's Wanger Family Fab Lab, designed to support differentiated learning and assessment in the classroom and beyond.





# Out of School Time Training and Programs

## Out-of-School Time Science Curriculum Training Plus

Energize out-of-school time programs with our blend of in-person training and digital STEAM curriculum. Included are 25 student journals and one materials bin. Each bin contains materials for 25 students. Curriculum includes lessons and activities for at least five hours of engagement.

## Out-of-School Time Science Curriculum Training Premium

Energize out-of-school time programs with our blend of in-person training and digital STEAM curriculum. Included are 75 student journals and three materials bins. Each bin contains materials for 25 students. Curriculum includes lessons and activities for at least five hours of engagement.

Empower educators to foster inclusive and equitable learning in out-of-school-time (OST) environments. Our team will support educators and site partners cultivate their expertise, skills, and passion to become leaders in STEAM who inspire the next generation to explore the wonders of the natural and human-built world.





# Outreach at Your School

## CURIOSITY STATIONS

Unleash your creativity at MSI STEAM Nights! Elevate your next school or community science event with **two** of our favorite interactive science demonstrations. Our expert facilitators will captivate your guests for two hours, offering build-and-play activities and creating lasting memories.

### Learning Labs

Connect with classroom curriculum, engage students in the scientific process, and provide insight into STEM careers with MSI's Learning Labs, led by a Museum educator.

### STEAM Clubs

Explore science topics at your site! Each week, MSI staff deliver inquiry-based, hands-on lessons that ignite curiosity and develop scientific skills. Curriculum is designed for grades 3 - 8 but can be modified for younger grades.

### Innovation Studio

Empower students to embrace design thinking and innovation, whether at MSI or your site. At Innovation Studio, we embrace inspiration, self-direction, creativity, and exploration through making. This program can be done at your site or at MSI.

### Super Sonic Showcase

Grades: K-6

Discover the science of sound as you craft your very own musical instrument to take home.

### Energy Exploration

Grades: 1-6

Discover the power of energy transformations as you construct a science toy, then playtest it and take it home!

### Optical Illusions

Grades: 4-12

Peer into the inner workings of the eye and discover ways to trick your brain as you craft mesmerizing optical illusions.

### Circuit Building

Grades: 2-12

Discover how electricity powers our world as you create your own simple circuit.

### Tech Jam

Grades: 2-12

Experience MSI's Wanger Family Fab Lab at your school! See digital design and fabrication technology in action and discover their real-world applications.



## Onsite Programs at MSI

Explore science hands on in a 60-minute experience that highlights real world connections. Labs are aligned to NGSS (Grades 3–12) and can accommodate up to 30 students.



### Water Lab

Students will analyze real water samples to assess the health of Lake Michigan, exploring human impact on water quality and the ongoing effort to improve and conserve this natural resource.

### Colorful Chemistry

Students will engage in hands-on, interactive chemistry experiments that captivate their curiosity and reveal visual evidence of chemical reactions in action.

### Crime Lab

Become a forensic scientist! Students collaborate to unravel the mystery of a high-stakes theft. Analyze fingerprints, chromatography, white powder, and more to uncover the evidence needed to crack the case.

### Engineering Design: Bridges

Students become civil engineers challenged to develop bridges, exploring the principles of span, load, shapes, materials, and more through the engineering design cycle.

### Moving with Newton

Dodge falling apples while exploring Newton's three laws of motion! Through hands-on activities and lab equipment, students will discover the significance of and application of Newton's laws.

### Mars 2040

Students harness 21st-century learning skills and technologies to support a human colony on Mars. Using real research, they'll explore solutions to fulfill critical needs for food, water, power, and a safe atmosphere.

### MedLab: Heart Disease

Work with a human patient simulation robot, conduct authentic medical tests, and use an ultrasound simulator to diagnose and understand heart disease.

### Live from the Heart

Ever wonder what it's like inside the operating room? Students witness a real surgical team performing heart surgery through video, then talk with the surgical team to gain insights into heart health and explore potential careers in the medical field.





## CAMPS! @MSI

### Year-Round Camps

Maximize your school breaks with MSI! Explore world-class exhibits and engage in hands-on science learning through our one-day and week-long camps, available during spring, summer, fall, and winter breaks, with additional day camps on select Saturdays.

### Fab Lab Summer Apprentices

Unlock opportunities for motivated teens to enrich their design thinking journey by becoming a Bridge Mentor for younger kids or by embarking on their own 'design thesis' project in collaboration with our Wanger Family Fab Lab team. Exclusively available to past Summer and School Year camp alumni based on earned belts.

**For information about current camp offerings, visit our website.**



Explore, innovate, and create with MSI during your school breaks! Our STEAM content meets your child at their level, nurturing their confidence and skills through engaging hands-on learning experiences.





# Other Education Offerings

Museum-wide career celebrations bring kids and families face to face with STEAM professionals.



## Career & STEAM Events

Enjoy dynamic speakers, hands-on activities, and one-on-one discussions to bring STEAM careers to life. MSI collaborates with education organizations, providing space for them to showcase their own STEAM programs and student achievements to our Museum guests.

## Jr Science Café

Grades: 4–12

These learning experiences aim to change the perception of a “traditional” STEM professional by engaging professionals of all ages, backgrounds, interests, and career paths, conveying that anyone can pursue a career in STEM. Sessions can be virtual or in person.

## Curiosity Kits

Explore science at home or at your site!

These kits provide the materials and activity guides you need to enjoy hands-on science activities developed by our experts.

**Left:** Katya Echazarreta, Electrical Engineer and the first Mexican-born woman in space, visiting MSI for the Girls in STEM event.

For inquiries or more information, contact us at [Learning@msichicago.org](mailto:Learning@msichicago.org) or visit our website.



museum of **science+industry** chicago



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