

PROFESSIONAL DEVELOPMENT WORKSHOP CATALOG

Visit CarnegieScienceCenter.org/TEA
for dates and registration.

Presented by:



STEM Integration Series

Teaching Content through Game Design

K-12 teachers | 3-hour workshop

Learn how to create and use board games in your curriculum. Custom-created games can be a valuable instructional tool for teachers and the game creation process can aid the development of your students' STEM competencies. You will create a content-focused game for use in your classroom.

Puzzle Solving

K-12 teachers | 3-hour workshop

You have heard, "When am I ever going to need this information?" By embedding simple puzzles and codes into a narrative story, teachers engage their students while challenging them to solve a larger, content-focused problem together. Regardless of your content area or age group, you will receive the tools you need to create fun activities.

Critical Thinking through Storytelling and Role Playing

K-12 teachers | 3-hour workshop

Critical thinking is crucial to every student's future. Being able to identify core issues in a situation and apply them to past or future events allows for efficient problem solving. Roleplaying and storytelling provides a solid scaffold upon which connections can be built. Learn how to implement storytelling and role play activities to facilitate critical thinking skills, create narratives, and increase engagement.

STEM Basics Series

What is STEM

K-12 teachers, administrator | 3- or 6-hour workshop

Learn how to integrate STEM best practices into any classroom. We'll discuss factors that make for a collaborative STEM learning environment and resource materials and curriculum tools that incorporate STEM into multiple subject areas. Develop STEM buy-in with fellow stakeholders with our proven strategies.

Equity in the STEM Classroom

K-12 teachers, administrator | 3-hour workshop, multiple offerings

Prepare your students for the growing number of STEM careers and education pathways and make STEM accessible for ALL students, regardless of sex, race, or socioeconomic background. Discuss hidden messages that are inherent in communication to children about their STEM abilities, and learn ways to cultivate mindsets that ensure equitable STEM education. You'll learn strategies to communicate to your students that STEM is for everyone.

Best Practices in STEM Education

Building Your PBL Classroom

K-12 teachers | 3-hour workshop

Inspire and excite your students about STEM through project-based learning (PBL) regardless of your content area. Use your expertise to develop STEM projects that address real-world problems and require students to be engaged. Project resources, group work strategies, and collaborative opportunities also are included.

Computer Science in the Elementary Classroom

K-6 teachers | 3-hour workshop

Logic, problem solving, and creativity are integral to computer science. Participants will use Scratch programming software and learn how it can be integrated into multiple subject areas in ways that inspire students to be creators of technology. Important aspects of cyber security also will be discussed. *Each participant will need his/her own computer for off-site workshops.

STEM Up Your Science

K-6 teachers | 3-hour workshop

Are you looking for a way to engage your elementary students with hands-on STEM activities? Start with three hands-on activities that explore science and engineering and spark your students' creativity. Designed for non-science specialists, this workshop includes time to brainstorm and share experiences related to your classroom's specific needs.

Subtle Shifts to Inquiry

K-12 teachers | 3-hour workshop

Do you want to make your class more inquiry-focused? Transitioning a traditional classroom to one that is more question-centered does not require a total curriculum rewrite. Learn simple classroom strategies to turn traditional lessons and activities into those driven by student curiosity and give kids the opportunity to practice and develop their STEM skills.

Early Learner Series

Hello Robo: Early STEM Robotics

Pre-K – 1st grade teachers | 3-hour workshop

Robots provide unseen services in industries such as transportation, medical, and manufacturing industries. Early learners need the foundational STEM skills that allow them to imagine and build the robots of the future. Use resources from NAEYC and other STEM experts to examine developmentally appropriate concepts to prepare your students for robotics technologies. Discover hands-on, standards-aligned activities you can do right away, even if you don't have a robot (yet!).

On a Roll: Early Engineering with STEM

K-12 teachers | 3-hour workshop

Use easily accessible materials to explore the engineering processes ("E" in STEM) that make building marvels such as bridges, inclines, and mass transportation systems. Re-energize your use of physics standards and uncover new methods of STEM engagement. Use resources from NAEYC and evidence from classroom-tested activities to design a four-week investigation into ramps to complement curriculum units on transportation and neighborhoods.

Project-based Learning in Early Years

Pre-K – 2nd grade teachers | 3-hour workshop

When early learners engage in the project approach, their learning spans multiple domains and standards, including STEM. Discover the phases of project-based learning (PBL) for young children, from choosing a topic to sharing your findings. Guided by case studies, evaluate multiple approaches, and collaboratively build a project plan that maximizes STEM engagement.

Carnegie Science Center-based Offerings

Planet STEM

K-6 teachers | 3-hour workshop

Explore planets as pathways to learning across the curriculum in your elementary classroom. Take part in activities featuring robotics, color and light, phases of matter, Earth science, and music, all themed around a tour of our Solar System. Discover NASA's latest interplanetary missions. Enjoy a theatric planetarium adventure with our lovable animatronic, Quasi the Robot. Travel to the canyons of Mars, the rings of Saturn, and the heart of everyone's favorite dwarf planet, Pluto. Captain your own classroom activities on the Solar System.

Sports & STEM

K-8 teachers | 3-hour workshop

Bridge the gap between STEM and physical education in this fun, full-body workshop. Half of the session will be spent exploring Highmark SportsWorks® (some exhibits require full mobility), including the brand-new Ropes Challenge exhibit. The second half will focus on integrating sports into lessons on physical science and the human body to provide powerful lessons from both content areas.

Maker Education Series

Elementary Coding and Making

Grade 1-5 teachers | 6-hour workshop

Digital fabrication technologies make computer programming physically engaging! Learn Scratch and Sphero's drag and drop coding. Use the MaKey MaKey, vinyl cutter, and laser cutter to complete hands-on projects that you can use to reinforce computational thinking skills learned in coding.

Introduction to STEM Making

K-12 teachers | 6-hour workshop

Fab Lab Carnegie Science Center integrates STEM competencies into authentic making experiences for all learners. With digital fabrication technologies, such as 3D printers, laser cutters, and CNC machines, students can learn essential skills while creatively designing projects. Discover the basics with hands-on projects and explore ways of integrating digital fabrication into curriculum.

Making a Fab Lab

K-12 teachers | 6-hour workshop

For schools that are considering a digital fabrication makerspace, this is an all-inclusive workshop. Create hands-on projects using the 3D printer, laser cutter/engraver, and vinyl cutter, and share best practices. Discuss technology recommendations, budget, managing challenges, makerspace facilitation techniques, and integrating making into the curriculum. Fab Lab staff will share resources and answer questions.

Quadcopter Challenge for MS-HS

MS and HS teachers | Two consecutive 6-hour workshops

Get your middle and high school students excited about electronics, soldering, and the engineering design cycle by teaching them to make their own palm-sized, remote-controlled quadcopters! Learn to design, prototype, and redesign quadcopters using a laser cutter or CNC router. Wrap up with discussion, share classroom strategies, and leave with a lesson plan, classroom presentation material, a parts list, and your own quadcopter.



These workshops can be delivered on-site.
Act 48 credit provided.

To schedule a workshop at your school, call:

Toni Stith | STEM Professional Development
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