

Package Components: Workshops, Coaching, and Support

PROFESSIONAL DEVELOPMENT WORKSHOPS

18 hours of workshop instruction

Choose from an array of workshops designed to train teachers in STEM education best practices. Workshops feature project-based or inquiry learning, and fit under the following series:

- ◇ Best Practices in STEM Education
- ◇ Early Learner
- ◇ Maker Education

Select from the available options to the right and on the next page. You can customize your own workshop using the Teaching Excellence Academy workshop catalog.

INDIVIDUALIZED COACHING/CONSULTATION MEETINGS

Two 90-minute sessions | Up to 15 educators

Individualized coaching with select educators at your school by a Science Center STEM expert will help you to develop a tailored plan to strengthen your STEM education plan or advise you on digital fabrication technology and makerspace needs at your school.

STEM CONCIERGE

Interested in getting your kids involved with Carnegie Science Center STEM events or competitions? We will provide a STEM Programs representative to visit your school to share resources and ideas to help get you started at your school.

ON-CALL PHONE/EMAIL ASSISTANCE

When you have a science question in the classroom or when you're looking for a creative idea, give us a call or send us an email. Our Science Educators are on-call to lend a hand, and our Teaching Excellence Academy package members will receive top priority.

Best Practices in STEM Education

What is STEM

K-12 teachers, administrator | 3-hour workshop | Up to 30 participants

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.

The Next Step in STEM

K-12 teachers | 3-hour workshop | Up to 30 participants

Participate in an action-oriented workshop that will have you collaboratively planning for the implementation of your STEM education program. This workshop employs strategic methods like stakeholder mapping and directed brainstorming. Through guided group discussion and visualization, set your school on a successful track with the Carnegie STEM Excellence Pathway.

Building Your PBL Classroom

K-12 teachers | 3-hour workshop | Up to 30 participants

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.

Learning through Inquiry

K-12 teachers | 3-hour workshop | Up to 30 participants

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 existing traditional lessons and activities into those driven by student curiosity and give kids the opportunity to practice and develop their STEM skills.

A Professional Development Package is active for a year (the full 12 months from your time of sign up).

Add-ons are offered at a discount of 15% off the regular rate:

- Additional coaching visits to facilitate STEM education at your school and/or to demonstrate digital fabrication technology at your school
- STEM parent-engagement opportunity at your school
- Mobile Fab Lab visit at your school for student programming

Visit CarnegieScienceCenter.org/TEA for dates and registration.

Presented by:



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Early Learner Series

Hello Robo: Early STEM Robotics

Pre-K – 2nd grade teachers | 3-hour workshop |
Up to 30 participants

Robots provide unseen services in industries such as transportation, medical, and manufacturing industries. Early learners need the foundational STEM skills that enable 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

Pre-K – 2nd grade teachers | 3-hour workshop |
Up to 30 participants

Use easily accessible materials to explore the engineering processes ("E" in STEM) that make building marvels such as bridges, inclines, and mass transportation systems possible. 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 |
Up to 30 participants

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, you will evaluate multiple approaches and collaboratively build a project plan that maximizes STEM engagement.

Critical Thinking through Storytelling and Role Playing

Pre-K – 2nd grade teachers | 3-hour workshop |
Up to 30 participants

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 enables 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.



Maker Education Series

These hands-on digital fabrication and maker-based workshops can be delivered three ways:

- At Fab Lab Carnegie Science Center
- At your school, in your makerspace and with your equipment
- At your school, using our mobile Fab Lab's equipment (additional fee applies)

Elementary Coding and Making

Grade 1–5 teachers | 6-hour workshop | Up to 15 participants

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 and making.

Introduction to STEM Making

K–12 teachers | 6-hour workshop | Up to 15 participants

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 | Up to 15 participants

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 | 6-hour workshop | Up to 15 participants

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.

