Carnegie Science Center provides professional development to schools and districts who are seeking to improve their STEM education programs. Through the Teaching Excellence Academy, educators evaluate their current STEM programs and select workshops that will enhance STEM education in their schools and districts.

**2019-20 Package Components: Workshops, Coaching, and Support**

**Professional Development Workshops**
18 hours of workshop instruction • Up to 30 educators per workshop
Choose from an array of workshops designed to train teachers in STEM education best practices. Workshop delivery balances professional learning with hands-on exploration. You select workshops to customize your professional development package. Visit CarnegieScienceCenter.org/TEA for additional options.

**Individualized Coaching/Consultation Meetings**
Two 90-minute sessions • Up to 15 educators per session
Individualized coaching with select educators at your school by a Carnegie Science Center STEM expert will help you to develop a tailored plan to strengthen your STEM education program or advise you on digital fabrication technology and makerspace needs at your school.

**A Professional Development Package begins at $10,000.**

Discounts available based on the school’s/district’s eligibility for free or reduced-price lunch percentage. The package is active for a year (12 months from sign up). Add-ons are offered at a discount of 15% off the regular rate:

- Additional coaching visits and workshops to facilitate STEM education at your school
- BNY Mellon Mobile Fab Lab visits at your school for student programming

Visit CarnegieScienceCenter.org/TEA for more details.

**For more information:**

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**Starting Your STEM Pathway**

Get ready to spark new ideas and build on existing ones as you discover STEM best practices and learn strategies for integrating them into your curriculum.

**What is STEM?**

K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

STEM best practices can be woven into any classroom or lesson plan. In this first workshop, we’ll discuss factors that make for a collaborative STEM learning environment, as well as resource materials that incorporate STEM into multiple subject areas. Develop STEM buy-in with fellow stakeholders using our proven strategies.

**The Next Step in STEM**

K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

Participate in an action-oriented workshop that will have you collaboratively planning for the implementation of your STEM education program. Learn about employing strategic methods such as creative matrices and directed brainstorming. Through guided group discussion and visualization, set your school on a successful track with the Carnegie STEM Excellence Pathway.

**Create & Integrate**

K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

Classes in schools have long been segregated into “silos” based on subject and often there are few connections between these silos. This workshop aims to solve this issue by asking participants to brainstorm potential avenues for subject integration and create integrated lessons that can be used upon leaving the workshop.

**Authentic Assessment**

K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

Standardized tests were the norm to meet one-size-fits-all learning environments. But as the workforce requires students to be more flexible and creative than ever before, how do we measure these new skills and competencies? Prepare students for a more diverse workforce by creating authentic assessments that measure meaningful learning rather than rote memorization.

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Presented by: KENNAMETAL
Pillars of STEM

Each workshop in this series focuses on one of the four pillars that form a high-quality PreK–12 STEM education: project-based group learning, inquiry-based education, integrating curriculum, and career awareness.

Project-Based Learning
K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

Regardless of your content area, project-based learning (PBL) is sure to inspire and excite your students about STEM. 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 are also included.

Inquiry-Based Education
K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

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 lessons and activities into ones driven by student curiosity that give kids the opportunity to practice and develop their STEM skills.

Integrating Engineering
K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

Engineering is all around us. Learn about various engineering disciplines and discover practical ways to integrate engineering activities in any classroom. Stimulate curiosity and express creativity through two hands-on engineering challenges that you can use as you integrate STEM across your school’s curriculum.

Tech Exploration
K–12 teachers • 3-hour workshop • Three hours of Act 48 credit

Learn how to illuminate career pathways through the use of innovative educational technology. Engage in hands-on exploration of different types of educational technology such as Spheros, littleBits, and StikBot Studio, and bring back activities to your classroom.

Train-the-Trainer Coaching Model
K–12 teacher leaders/administrators • Hours vary • Act 48 credit varies

When implementing a STEM program, one of the biggest challenges is how to remain at the forefront of instructional methods while adapting to changing trends, requirements, and environments.

Carnegie Science Center can train a small team to lead professional-learning opportunities that relay instructional support back to the organization. Learn to equip colleagues with strategies and resources that will foster an equitable STEM-learning environment. Strengthen your group facilitation skills and provide your school/district with knowledge on the latest teaching approaches and technologies to strengthen their STEM initiative.

Maker Education Series

Hands-on digital fabrication and maker-based workshops are designed for up to 15 participants and can be delivered three ways:

• At BNY Mellon Fab Lab Carnegie Science Center
• At your school using your makerspace and equipment
• At your school using our BNY Mellon Mobile Fab Lab

Coding and Making
K–8 teachers • 6-hour workshop • Six hours of Act 48 credit

Digital fabrication technologies make computer programming physically engaging. Learn Scratch, as well as drag-and-drop coding that can control ground-based Spheros and air-based Parrot drones. Use the MaKey MaKey invention kit, 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 • Six hours of Act 48 credit

Digital fabrication integrates STEM competencies into authentic making experiences for all learners. With digital fabrication technologies like 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 your curriculum.

Making a Makerspace
K–12 teachers • 6-hour workshop • Six hours of Act 48 credit

This is an all-inclusive workshop for schools that already have a digital fabrication space or for those who are considering creating one. Make hands-on projects using 3D printers, laser cutters/engravers, and vinyl cutters. Discuss best practices, technology recommendations, budget, managing challenges, makerspace facilitation techniques, and integrating making and the space itself into schoolwide curricula.

Quadcopter Challenge
MS and HS teachers • 6-hour workshop • Six hours of Act 48 credit

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.