EDUCATE TO INNOVATE
PROGRAM OF SESSIONS

SESSION 1 (10:05-10:55 A.M.)

The Future Is Optics; It Could Be Your Students' Future Too. (6-12)
AmeriCOM | Donna D Smith, Science Educator Liaison

Learn about precision optics and why your students should know about it. Leave with free resources and activities to use in your classroom to help you teach the Arizona Science Standards.

Nurturing Wonder: Authentic Research in Early Childhood (PreK-1)
Arizona Science Center | Jen Petersen, Manager of STEM Competitions and Outreach

Young children are natural scientists, full of questions and curiosity about the world around them. In this workshop, you'll practice simple strategies to spark wonder in your preschool - 1st grade students and guide them through age-appropriate investigations. Experience the process yourself as we dive into an inquiry activity you can easily adapt for your classroom.

Spring into Science: Drama, Play and Embodied Cognition during Science Class (K-6)
Childsplay Theatre | Alex Frost, Resident Teaching Artist | Katie Brantley, Director of Education

Get on your feet because in this dynamic, participatory workshop, we'll jump right into hands-on, exciting drama strategies to use in YOUR science classroom! Come play and discover how drama-based instruction, an evidence-supported approach, increases learners' engagement and comprehension. We'll cover three drama strategies, each through the lens of a different scientific concept. Strategies and concepts will span K-6 content and connect to both core ideas and standards.

The Mysterious Case of the Bass in the Lake (4-8)
Arizona Game and Fish Department | Eric Proctor, Wildlife Education Coordinator

Striped Bass have appeared in Lake Pleasant. What happens now? Will they outcompete the other fish? Will they breed and take over? We'll need to study their behavior to find out. Can you examine the evidence to help determine the impact of these nonnative fish?

Storybook STEAM: Bringing Fairytales to Life Through Hands-On Learning (K–5)
Arizona Science Center | Noortje Nelissen, Professional Development Facilitator

Step into a world where imagination meets innovation! In this interactive workshop, educators will explore a collection of beloved fairytales each paired with engaging, standards-aligned STEAM activities designed for grades K–5. Participants will experience how storytelling can spark curiosity, deepen comprehension, and inspire creative problem-solving.

Engineering Entrepreneurs: Using Design Thinking to Innovate (6-12)
Take Charge Today | Robin Palmer, Education Specialist

In this hands-on session, participants become "engineering entrepreneurs" as they use the design-thinking process to design a chair to better meet customer needs. Using Arizona's science and engineering focus, participants will work through a rapid design cycle: empathizing to identify user needs, ideating, creating prototypes, testing ideas, and sharing findings. Participants will walk away with a ready-to-use activity that blends engineering design, creativity, collaboration, and entrepreneurship—perfect for engaging students in authentic problem solving.

SESSION 1 (10:05-10:55 A.M.)

The Sensory Circuit: Expanding Mindfulness to Wire the Brain for Regulation (PreK-12)

Mindfulness First | Madicyn Quiroz, Senior Programming Specialist

Join us for an engaging and interactive workshop that dives into the fascinating connection between our brains and bodies while expanding the concept of mindfulness beyond the traditional five senses. We will explore the critical roles of vestibular (balance), proprioception (body position), interoception (internal body signals), and social sensing (relational awareness) in emotional regulation. This session supports educators on how to skillfully address on-the-spot physical and emotional regulation for themselves and their students. We'll dispel common misconceptions about mindfulness and provide educators with practical, research-backed strategies and easy-to-implement interactive tools to enhance both personal and professional well-being while creating more successful, sensory-informed classroom dynamics. This workshop serves educators at all experience levels, from mindfulness newcomers to those seeking to deepen their practice. Whether you're looking to enhance your personal well-being, improve classroom management, or create more meaningful connections with students, this session offers practical tools you can implement immediately.

From Data to Dialogue: Using Slow Reveal Graph Protocols for Data Sensemaking (K-12)

Arizona Department of Education | Marisa Tualla, K-12 Math Specialist | Johanna Kaiser, K-12 Science Education Specialist | Jill Scott, K-12 Social Studies and World and Native Languages Specialist

Slow reveal graphs are a powerful instructional strategy for fostering curiosity, critical thinking, and student discourse. In this session, educators will explore:

- Apply pacing and questioning to guide predictions and revisions
- Support data literacy across content areas
- Leave with ready-to-use strategies for any classroom

New or experienced with slow reveal graphs, you'll leave with strategies to make data sensemaking come alive in your classroom!

SESSION 2 (11:05-11:55 A.M.)

Learning How to Ask Questions (4-12)

Grand Canyon University | Marni Landry, Sr. Director of K12 Outreach

In this interactive and practical session, participants will learn how to implement the Question Formulation Technique (QFT) to empower students to ask their own questions. The QFT is a simple, yet powerful, strategy that teaches students to generate, improve, and prioritize their questions. We will move beyond the theoretical and engage directly with the six-step process, providing educators with a clear, actionable plan to integrate student-driven inquiry into their classrooms across all subject areas.

Curiosity in Motion: Igniting Inquiry with Edison Robots (K-8)

Arizona Science Center | Brenna Follett, Director of Professional Learning

Experience the power of Edison Robots to engage students in hands-on STEM learning. This session explores how robotics can fuel curiosity, foster inquiry-based learning, and support accessible, student-centered instruction through interactive lessons and creative challenges.

Discover Nature Right Where You Are (PreK-12)

Phoenix Zoo | Leslie Bell, Formal Learning and Engagement Specialist

Studies show that spending time and learning about nature can improve students' academic performance by decreasing stress and increasing self-regulation, as well as stimulating enthusiasm for learning. If your students struggle to spend time in nature or your school's situation doesn't easily lend itself to environmental learning – you're not alone! Join Phoenix Zoo educators as we talk about simple ways you can bring nature and its benefits into your classroom.

EDUCATE TO INNOVATE
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SESSION 2 (11:05-11:55 A.M.)

A Peek Below: Field Geology and Ore Deposit Modeling (6-12)

University of Arizona School of Mining Engineering & Mineral Resources | Dan Moreno, Outreach & Instruction Specialist | Chris Earnest, Outreach Coordinator

Play the role of a field geologist searching for copper ore among igneous rock formations in Arizona's Copper Corridor. After identifying a possible location, develop and execute a drilling plan to characterize the ore body. Finally, use your geometry or calculus skills to predict how much copper you may have discovered and check your results! You can do all this and more using kinetic sand and Play-Doh in a plastic shoebox, boba straws, and a magnetic field probe. Join us for this engaging hands on session to learn more!

Buzzing Into STEM: Exploring Pollination With Honey Bees (K-5)

University of Arizona Cooperative Extension | Caroline Woolsey, Assistant in Extension for Agricultural Literacy & STEM

Teachers will experience a pollination simulation that demonstrates how honey bees help pollinate many of the crops grown in Arizona. This hands-on activity shows how bees move pollen between flowers and supports student understanding of plant systems and ecosystems. Participants will leave with a simple, adaptable lesson they can immediately use in their classroom.

Principles for Developing Culturally Sustaining and Responsive Curriculum for Indigenous Students (PreK-12)

Institute for Native-serving Educators | Denyse Herder, INE Program Coordinator | Darold Joseph, INE Director

In this session, presenters from the Institute for Native-serving Educators (INE) at Northern Arizona University will provide an overview of Indigenous Education and Indigenous Nation Building, engage participants with the Culturally Responsive Assessment of Indigenous Schooling (CRAIS) Tool, and construct strategies for engaging culturally responsive STEM teaching and learning. The Institute for Native-serving Educators (INE) is a collaborative initiative to strengthen schools across Indigenous homelands. Housed in NAU's Office of Native American and Indigenous Advancement (ONAIA), we partner with Native Nations, Indigenous-serving schools, and public school districts on and bordering Tribal communities to develop professional development opportunities that meet community needs.

Beyond Numbers: Supporting Students with the SEP: Using Mathematics & Computational Thinking (6-12)

Arizona Department of Education | Johanna Kaiser, K-12 Science Education Specialist | Sarah Sleasman, Director of Science and STEM

Mathematics and computational thinking are essential tools for making sense of scientific phenomena—but what do they really mean in practice? In this interactive session, we'll unpack the Science and Engineering Practice: Using Mathematics and Computational Thinking, clarify the differences between mathematical and computational thinking, and explore strategies to help students apply these skills authentically in science classrooms. Participants will leave with practical examples and resources to integrate these practices into instruction across grade levels.

Where STEM Meets Nature: Engaging Students with Project Learning Tree (PreK-12)

AZ Department of Forestry and Fire Management | Megan Lasley, Forestry Outreach Coordinator | Timara Crichlow, Urban and Community Forestry Specialist

Project Learning Tree (PLT) is an environmental education resource that uses trees and forests as a window to teach learners of all ages HOW to think, not WHAT to think, about complex environmental issues. Activities are aligned with existing curriculum standards and designed for facilitators who do not have a formal environmental science background - making PLT an ideal resource for Preschool-12 educators to create energized STEM experiences related to any subject with minimal preparation. If you think this session isn't relevant because you teach in the desert, this session is for you! Join this session to walk away with hands-on experience and sample activities for various learning levels, no matter what your "outdoors" looks like, to lead STEM experiences grounded in experience and guided by your local environment.

SESSION 3 (12:55-1:55 P.M.)

Spectacular Saguaros and Bee Heroes – Sparking STEM Learning in the Sonoran Desert (K-5)

Arizona-Sonora Desert Museum | Robin Kropp, School and Youth Program Coordinator

This workshop explores "We Bee Scientists" – free, open-source curricula for grades K-5. These dynamic, hands-on, standards-based units explore local phenomena to deepen Arizona students' STEM understanding. The Sonoran Desert is a biodiversity hot spot, home to iconic species like the saguaro cactus and some of the greatest native bee diversity on Earth. Sample how the Grades 1 and 2 units engage students as experts and empower them to appreciate and protect the unique biodiversity of their Arizona home.

My Community: A Research to Practice Game (8-12)

Arizona Science Center | Kal Mannis, Sr. Director for Rural Engagement
Lisa Lewis, Director of Viney Jones Florence Public Library

This presentation revolves around a game that draws from research data collected in 2024 funded by the U.S. Department of Energy and gathered by a team from ASU. The resulting game gives students a chance to prioritize authentic issues within their community, discuss the topics, and develop potential solutions. Guidance will be offered on the use of the materials to initiate Problem Based projects that tie community, youth voice, and realistic problem solving.

AEF Innovation Lab: Free STEAM Playground for Teachers (PreK-12)

Arizona Educational Foundation | Jonathan Perrone, STEM Coordinator

Come discover a hands-on STEAM Playground: the Cox Innovation Lab, a free resource for teachers provided by the Arizona Educational Foundation. In this interactive session, AEF invites K-12 educators to investigate a sampling of the Lab's inventory, including robots, 3D printing, design tools, circuits, VR, and more. Beyond the tech, you will discover how the Lab serves as a comprehensive support system for your classroom. We will guide you through accessing free professional development, utilizing the ASAP Database of over 2,300 STEM lessons, and navigating funding opportunities for your specific projects. Join us to discover how the Lab can power up your teaching.

Splash Zone! All About Water with PBL STEAM Activities (PreK-8)

Flood Control District of Maricopa County | Angela Clipper, STEM Outreach Coordinator | Donnel Taylor, Outreach Coordinator Liaison

Educators will participate in hands-on activities The Flood Control District of Maricopa County offers free to PreK-12 schools and organizations within Maricopa County. You will leave with a multitude of ideas to use in your own classroom as well as the opportunity to have Flood Control visit your school! Activities will include Build-a-Dam, water cycle bracelets and water cycle bags.

The Case for Elementary Math Clubs (3-6)

Math Club in a Bag | Sherry Griffin, Owner and Creator of Math Club in a Bag

Math is the creative application of logic to solve complex problems. A math club is an extracurricular group that explores math ideas, develops logic and thinking skills, and encourages both an interest and an enjoyment of mathematics. Math club is not a math class. Math club is about problem solving and applying tools learning in the classroom to solve new and different problems. Math clubs benefit GT and non-GT students alike with activities that provide deeper foundational math understanding and develop an enjoyment for embracing challenging problems. Having math clubs communicates to your parents and community partners that you have a commitment to preparing students for future STEM opportunities.

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SESSION 3 (12:55-1:55 P.M.)

Bringing Magnetic Science Education Experiences to Classrooms and Informal Learning Centers (5-9)

Nextage | Brooke Owen, Strategic Partnership and Outreach Manager | Dean Bushong, Engineer

Bring the magic of magnetic field science into your classroom or informal learning center with NextMAG. This science-grade magnetometer measures magnetic fields in real time, collecting data that quickly and effectively conveys stories and gives learners the skills to analyze data like real scientists. Pair NextMAG with the accompanying educator-developed lessons and activities to make learning fun.

SESSION 4 (1:55-2:45 P.M.)

Wild Designs: Engineering to the Rescue! (3-5)

Arizona Science Teachers Association | Cynthia Lopez, High School Science Teacher & ASTA Ambassador | Tisha Bourne, ASTA Ambassador

A hands-on STEM adventure where students explore how animals move, learn from real-world rescue stories, and design their own prosthetic solutions. From Winter the dolphin to Derby the bionic dog, students discover how engineering helps animals thrive.

Early Skills Through Play: The Six Bricks Way (PreK-5)

Arizona Science Center | Ashley Brooks, Director of Informal Youth Programs | Maddy Rohm, Senior Scientist of Science Communications

From Testing to Tinkering - How to use LEGO® Six Bricks in your Early Childhood Classroom. In this hands-on session explore ways to make assessments more interactive, encourage social interaction and communication skills, ease test anxiety, and create a positive, collaborative, and an exciting learning environment.

Tech in Action: Classroom Projects That Work (6-12)

The Institute for Digital Inclusion Acceleration | Dr. Erin Carr-Jordan, President & CEO

Tech in Action: Classroom Projects That Work equips educators with practical, ready-to-implement technology projects that engage students and enhance learning across subjects. Participants will explore proven project frameworks, from coding challenges to multimedia presentations, that integrate seamlessly into existing curriculum. Leave with a toolkit of actionable ideas, resources, and strategies to transform your classroom into a dynamic space where technology amplifies creativity and critical thinking.

Engage with AI Beginning Basics (2-8)

Code.org | Linda Angeloff, Facilitator

This session will look at AI on the Code.org website. It is appropriate for all grades if students have not learned anything about AI programming. It is a fun and engaging session and by the end you will be able to present it to your students.

Empowering Students Through Strategic Vocabulary Instruction (K-8)

Imagine Coolidge Elementary | Stephanie Hall-Zurek, Sr. Specialist, Dean of Academics

Research shows that building vocabulary skills in early learners raises achievement and confidence while supporting independent learning. Most teachers understand this, but struggle with how to successfully teach students new vocabulary words for each subject in fun and engaging ways that help them retain the meaning.

SESSION 4 (1:55-2:45 P.M.)

Challenge-Based Learning for Real-World STEM: Designing Solutions to Community Problems (4-8)

DoD STEM Ambassador | Liz Colton, STEM Teacher and Innovation Coach

How can we prepare students to become the innovators and problem-solvers our communities—and our future STEM workforce—need? In this hands-on session, participants will experience how Challenge-Based Learning (CBL) can transform STEM instruction by connecting classroom learning to real-world problems faced in Arizona communities. Building from the DoD STEM mission of inspiring the next generation of STEM leaders, this workshop models how educators can guide students through identifying authentic local challenges, developing solution concepts, rapidly prototyping ideas, analyzing test data, and iterating designs using the Arizona Science and Engineering Practices.

Easy Breezy Boats Engineering Design Challenge (PreK-K)

The STEMAZing Project- Pima County Superintendent's Office | Amanda McPherson, Director of the STEMAZing Project

In this hands-on STEM engineering challenge, we will investigate how wind energy can be used to move boats. The lesson introduces key concepts such as renewable energy, wind force, motion, friction, drag, and sail design. All materials and lesson plans will be provided for participants to get their Engineering On!