

Science and STEAM Professional Staff Development for K-12 Educators



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About Diana Wehrell-Grabowski, PhD aka *Dr. Diana*

Diana received her PhD in Science Education from the Florida Institute of Technology in 1994. She also has a Master's degree in Curriculum & Instruction in Science Education. Prior to establishing her consulting business in, 1987 she was a full-time science teacher, and an adjunct professor (Science Methods). She remains active in the classroom by conducting monthly hands-on science lessons in public and private schools.



Diana has provided over 800 professional staff development training workshops and institutes for public and private educational institutions, corporations, and educational organizations throughout the world.

She has been a keynote speaker, featured speaker, and presenter at over 70 conferences throughout the world.



Diana has worked collaboratively with other organizations in writing grants and providing training for major grant awardees.

Diana is an active member of numerous professional organizations including NSTA, ASEE, YALSA, TCEA, ITEEA, & NAEYC.

Diana is known for her effective and innovative teaching style, as well as being able to captivate, motivate, and inspire participants during her presentations. She is passionate about inquiry-based teaching and learning, student-driven classrooms, and transforming teaching and learning for the 21st-century.



About the Professional Staff Development/Workshops

- Are available year-round and on weekends.
- Are available throughout the nation.
- Are available in-person/onsite or virtually via ZOOM.
- Professional development is custom-designed for the specific needs/goals of the hiring client.
- Are aligned to NGSS learning goals, or regional adopted science standards.
- Goals for training are clearly stated.
- Meet the goals of the *Every Student Succeeds Act* (ESSA).
- Incorporate 21st-century skills.
- Are highly engaging, hands-on-minds-on, inquiry-based.
- Empower the participant through engaging investigations and thought-provoking discourse.
- Use simple, readily available, and inexpensive materials.
- Incorporate a wide array of affordable technological tools aside from computer-based technology.
- Incorporate reflective journals (science & engineering).
- Make connections across the sciences and disciplines.
- Each workshop is accompanied by a detailed manual.
- Provide opportunities for participants to design and create models to bring back to the classroom.
- Provide opportunities for participants to process what they have experienced as a learner, and how they will take what they have experienced back into their classrooms.
- A positive learning community is developed by providing opportunities for discourse and sharing among participants and Dr. Diana.



Science and STEM Workshops

The following workshops are available onsite, virtually, and hybrid. Onsite as half-day, full-day, and multiple-day institutes.

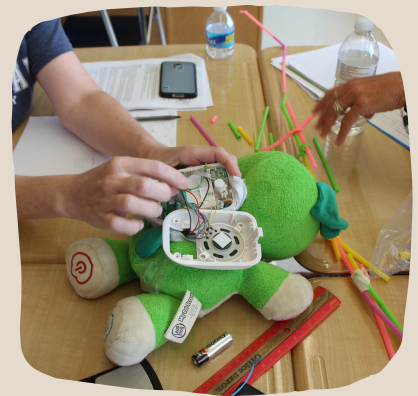
Virtual workshops are conducted in one-three hour blocks according to clients' requests. The suggested length for each of the workshops is 6 hours (full day). All of the workshops have been designed for multiple-day sessions, ideal for sustainable and effective professional staff development. All professional staff development scheduled includes a 30-minute post-workshop session to provide participants with feedback on lesson planning and implementation.

Teaching Science Through Inquiry-Based Instruction

During this workshop, participants will be introduced to the foundational principles of inquiry-based teaching and learning, and the benefits of inquiry-based learning. Participants will be introduced to effective inquiry-based teaching strategies, creating a culture of questioning, and the 5-E Inquiry Model. Participants will have the opportunity to undertake multiple hands-on-minds-on inquiry-based science explorations with their peers. Closing up the session with the participants adapting an existing science lesson plan to align with inquiry-based learning and the 5E cycle. K-2, 3-5, MS-HS (6 hours-20 hours).

Connecting Children With Nature

During this workshop, participants will learn simple yet effective ways to use the schoolyard, and other outdoor settings to teach children about the wonders of our natural world. Concepts include nature awareness, environmental stewardship, wildlife habitats, energy flow, gardening, exploring STEM outdoors, using low-cost mathematical & scientific tools outdoors, and creating art from natural materials. Participants will spend 2-3 hours outdoors in addition to indoor instruction and exploration. K-5 (6 - 12 hours).



Science and STEM Workshops

The Chemistry of Everyday Stuff

During this workshop participants will be introduced to the history and science behind man-made materials such as paper, plastics, polymers, super-absorbing polymers, toothpaste, cleansing agents, slime, Silly Putty, Kinetic Sand, and more. Participants will be material scientists for the day as they undertake a wide array of hands-on-minds-on, inquiry-based investigations to explore the chemistry of everyday materials. From observing physical and chemical changes, classifying materials, comparing and contrasting materials, and creating unique materials such as Oobleck, and more using readily available household materials. 3-5, 6-8+ (6-12 Hours). *Investigations will vary in complexity according to grade levels.*



Explorations in Life Science

During this workshop participants will be actively engaged in exploring life science concepts as they conduct inquiry and phenomena-based investigations. Concepts include exploring structure and function, classifying living things, animal and plant life cycles, adaptation & natural selection, evolution, and matter and energy in organisms and ecosystems. K-8 (6-12 hours). **Investigations will vary in complexity according to grade levels.*



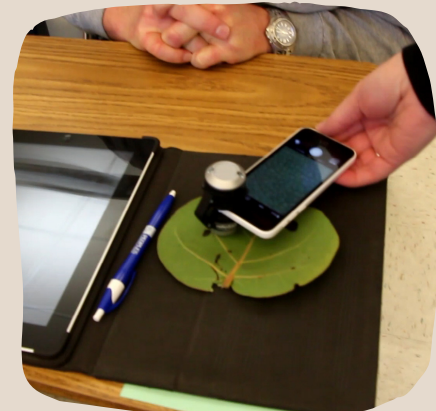
Exploring the Physical World

During this workshop participants will be actively engaged in exploring the physical world as they conduct inquiry and phenomena-based investigations. Concepts include the nature of matter, force, motion, and energy concepts. k-2, 3-5, 6-8 (6-18 hours). **Investigations will vary in complexity according to grade levels.*



Incorporating Biomimicry Investigations to Inspire and Engage Students

Biomimicry is a practice that learns from and mimics the strategies found in nature to solve human design challenges. During this workshop participants will be introduced to the foundational principles of biomimicry as well as undertake numerous biomimicry-based investigations & challenges. Concepts include structure and function, bio-inspired design, systems thinking, green science, and patterns in nature. Participants will leave this training with a deeper understanding of how biomimicry learning experiences can inspire and engage students in learning, and the world around them. K-5, 6-12 (6-18 hours).



Science and STEM Workshops

STEM Workshops

Exploring Best Practices in Science, Technology, Engineering, and Math (STEM) (Introductory Session)

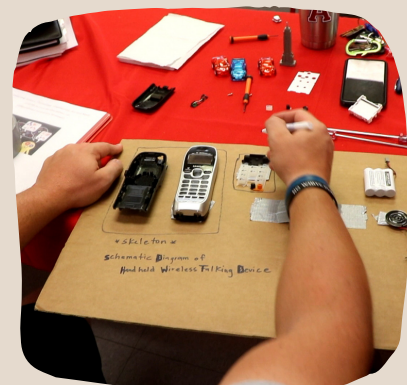
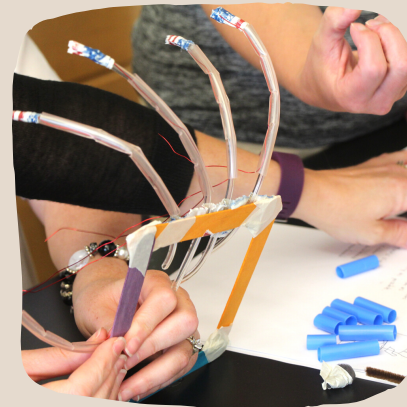
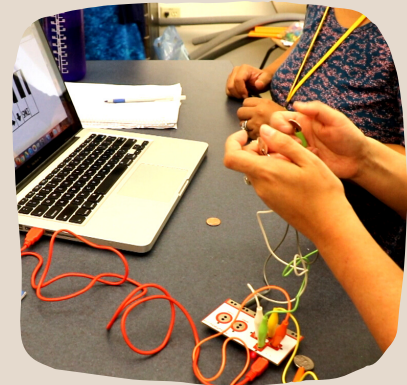
During this introductory training, participants will be introduced to the foundational principles of STEM education, best practices. Participants will be immersed in conducting STEM-based investigations that develop and strengthen 21st-century skills and engineering habits of mind. Participants will become familiar with the Engineering Design Process as they undertake numerous engineering design challenges using readily and affordable materials throughout the session. Participants will investigate, explore, solve problems, tinker, build structures and models with everyday materials and recyclables. Additionally, participants will be introduced to children's STEM-based literature and incorporating meaningful low-cost technology. K-2, 3-5, 6-8, 9-12 (6-12 hours).

Introduction to the Engineering Design Cycle

This workshop introduces participants to the Engineering Design Process. The workshop will emphasize the design process, the engineering approach to identifying and solving problems, and developing engineering habits of mind, and 21st-century skills. Great training to prepare teachers for incorporating NGSS Science & Engineering Practices. K-2, 3-5, 6-12 (6 hours).

Integrating Engineering and Literature to Teach STEM

During this workshop participants will be introduced to strategies to integrate fiction and non-fiction K-12 children's STEM-based literature to introduce the engineering design process and design thinking. Participants will be actively engaged in conducting engineering design challenges paired with STEM-based literature titles with a focus on engineering challenges to solve real-world problems. K-2, 3-5, 6-12 (6 hours).



STEAM Workshops

Integrating Children's STEM-Based Literature to Support STEM Learning K12

During this training, participants will learn how to bring science to life through popular K-12 literature including multicultural science-themed titles. Endless examples and strategies of how K12 literature can be used to introduce scientific concepts will be modeled and experienced during the training. Participants will be actively engaged in conducting inquiry-based science explorations accompanied by K12 literature titles. K-2, 3-5, MS-HS (6-18 hours).



Incorporating the Arts in STEM: From STEM to STEAM

The art is STEAM represents visual arts, social studies, history, physical arts, fine arts, and music. During this workshop participants will be introduced to strategies to incorporate the arts into STEM as they undertake STEAM-based explorations. Participants will be actively engaged in conducting inquiry-based STEAM explorations that incorporate design thinking and engineering principles. Additionally, participants will be introduced to incorporating reflective journaling and doodling in STEAM lessons. Participants will leave this training with a deeper understanding of the importance of involving the arts in STEM. K-6 (6 hours).



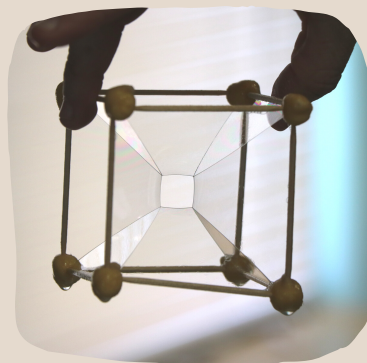
Green Engineering: Incorporating Socially and Globally Responsible Engineering Challenges

During this training, participants will be introduced to incorporating STEM challenges that are socially and globally responsible. Participants will conduct numerous engineering design challenges that are based on "real-world" challenges. Through investigations and active discourse participants will learn how STEM practices and content can help improve the environment in their community and worldwide. Concepts include environmental engineering, sustainability, citizen science, and biomimicry. 6-12 (6-12 hours).



STEM On A Budget

If your school or district is looking to incorporate STEM practices and content with limited funds, this training is for you! Participants will discover low-cost ways to bring tinkering and real-world problem solving into the classroom. Participants will become immersed in exploring STEM concepts through active engagement as they undertake low-cost STEM-based investigations. Additionally, participants will be introduced to incorporating meaningful and low-cost technology. K-6 (6-12 hours)



STEAM Workshops

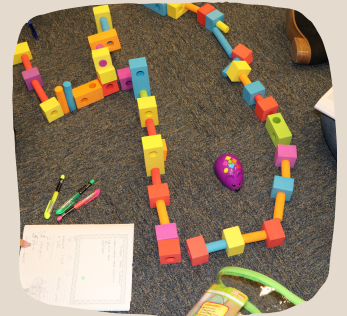
Multicultural STEAM Explorations

Participants will be actively engaged in undertaking hands-on-minds-on, inquiry-based STEAM explorations that promote and bring awareness to multiculturalism. Additionally, participants will be introduced to a wide array of STEAM-themed books for K-12 students that promote and empower diversity and multiculturalism. K-2, 3-5, 6-12 (6-12 hours).



Screen-Free Coding for K-3

This workshop is ideal for those organizations and schools looking to introduce elementary-age children to the foundational principles of coding unplugged. During this training, participants will be introduced to the importance of cultivating computational thinking in primary grade learning environments. Participants will be introduced to a wide array of affordable screen-free coding gadgets and toys as well as unplugged games to use when introducing children to foundational coding concepts. Coding gadgets participants will use during the training include Botley, Code-n-Go Mouse, Fisher-Price Robot, Bee-Bot, Coding Critters, Ozo Bot, and more. Participants will have the opportunity to use all the screen-free coding gadgets as they undertake coding and engineering challenges throughout the training. This workshop makes connections to all STEAM disciplines. Grades K-3 (6-12 hours).



Incorporating LEGO Building Bricks and More to Develop and Strengthen 21st- Century Skills

During this training, participants will be introduced to STEAM-based explorations that incorporate LEGO, and compatible building bricks to nurture and develop 21st-century skills, and develop engineering habits of mind. Participants will learn how to design and deliver STEAM-based learning experiences that make connections to the real world through playful learning incorporating LEGO, and compatible building bricks. Participants will leave the session inspired and empowered with a new outlook as to how LEGO and compatible building systems can provide students with the skills needed to thrive in the 21st-century. Participants will also receive a set of LEGO Challenge Cards (printed by the hiring client). Grades K-4 (6 hours).



Sample Videos of Trainings & Rates

Want to get a birds-eye view of what Dr. Diana's professional staff development and keynote sessions look like? Click on the following links for a sampling of professional staff development and interactive keynote sessions conducted by Diana.

Teaching STEAM Through Children's Literature

<https://www.youtube.com/watch?v=zH310DM6D4M&t=5s>

Inquiry-Based Science Teacher Training

<https://www.youtube.com/watch?v=f1wUtlTie4&t=127s>

Introduction to Computational Thinking via Screen-Free Coding Devices

<https://www.youtube.com/watch?v=L6tXP3ADdMI&t=46s>

STEM PD Engineering Design Challenge: Design, Create, & Engineer a Bristlebot

<https://www.youtube.com/watch?v=BgonaB2d9co&t=30s>

STEM PD Engineering Design Challenge: Engineer a Model Prosthetic Hand Using Readily Available Materials

<https://www.youtube.com/watch?v=2skFC8Sfgq8&t=49s>

STEM Teacher Training Engineering Design Challenge: Air Powered Car

<https://www.youtube.com/watch?v=VkyTGZodbGo&t=19s>

Building Maker Mindsets and Culture Through Makerspaces Workshop

<https://www.youtube.com/watch?v=7X8VRFlb2c8&t=8s>

STEM Teacher Training for 21st Century Community Learning Centers Staff

<https://www.youtube.com/watch?v=vz1sNHqR65M&t=1s>



Rates and Contact Information

Florida Rates

Three-Hour Workshop @ \$800.00 plus travel costs.

Full-Day (up to 6 hour of instruction) @ \$1,300.00 plus travel costs.

Rates Outside of Florida

Full-Day Workshop @ \$1,800.00 - Eastern States

West Coast/ Pacific Regions Full-Day Workshop @ up to \$2,000.00

Additional fees will be charged for travel (auto, air, hotel, rental car, meals, etc.).

Virtual Professional Staff Development - Contact Dr. Diana for a quote.

Virtual professional staff development sessions are conducted via ZOOM either in meeting or webinar format depending on the number of participants. Sessions are highly interactive!

Virtual sessions can be scheduled in 1-3 hour blocks.

Have more questions, need a quote, or interested in scheduling training for the 2021-2022 school year? Contact

Diana @ <http://www.dianawehrellgrabowski.com>

email @ drdianascience@bellsouth.net