

About

Mobile Science Education Consulting Services

Dr. Diana Wehrell-Grabowski, AKA Dr. Diana, owner of Mobile Science Education Consulting Services has been successfully conducting “hands-on” science programs and teacher workshops/in-services throughout the state of Florida and the United States since 1987. The business was created by Diana to provide progressive and quality “hands-on” science programs to students of all ages, and “hands-on” science inservices for teachers, administrators, and parents.

About The Owner

* Dr. Diana Wehrell-Grabowski received her Ph.D. Science Education from Florida Institute of Technology in 1994. She also has a Master’s degree in Curriculum and Instruction in Science Education.

* Diana has provided over 600 teacher in-services for public and private educational institutions, corporations, and educational organizations. Additionally, she has trained over 5000 individuals in the implementation of family science programs.

* Diana has been a keynote speaker, guest speaker and presenter at over 70 conferences throughout the state of Florida and nationwide.

* Diana has presented over 13,500 “hands-on” science programs to pre-K-12th grade students at hundreds of public and private educational institutions.

* Her business has been awarded several prestigious grants. Additionally, she has worked collaboratively with other organizations in writing grants and providing training in major grants.

* Her business has received the attention of the media on 40+ occasions. Additionally, she has written articles that have appeared in many publications.

* Diana has written 15 curriculum training manuals used in her teacher training workshops.

* Diana is a member of NSTA, FAST, NAEYC, NAAEE, FRA, ASEE, LEEF, COPUS, National Afterschool Assoc.

Looking for an educational interactive, and exciting keynote presentation for your next conference? Contact Dr. Diana for details, view her keynote speaker website@ <http://drdianakeynotespeaker.com>



Structure Of Workshops

- All workshops help to meet the goals set forth in the *No Child Left Behind Act*.
- All workshops meet the requirements of the *National Science Education Standards* (K-12th Grade).
- Florida workshops meet the requirements of the *new world-class Sunshine State Science Standards*.
- Florida workshops cover the *Eighteen Big Ideas* and four *Bodies of Knowledge* (Nature of Science, Life Science, Earth Science, and Physical Science).
- Florida workshops cover annually assessed FCAT Science benchmarks.
- All workshops incorporate a “hands-on” inquiry approach to the teaching and learning of STEM concepts.
- All workshops are **inquiry-based**.
- All workshops incorporate the use of interactive student notebooks (ISN) journals.

Funding

- Workshops can be funded primarily through Race to the Top, Title I, II, V Funds, IDEA funding, Technology, Drop-Out Prevention Grants

Florida Rates

- Three Hour Workshop.....\$600.00
- One Day Workshop (6 hrs).....\$900.00

Rates Outside Florida

- Three Hour Workshop.....\$800.00
- One Day 6 hr Workshop.....\$1,100.00-\$1,400.00
- National rates vary according to travel required.
- Discounts for multiple-day workshops.
- Additional fees will be charged for auto travel for all workshops, and lodging as required.

THE ABOVE RATES INCLUDE:

- One curriculum manual per participant (25) and supplies required to conduct in-service. Additional fees will be charged for 26+ participants.

HANDS-ON-MINDS-ON SCIENCE, TECHNOLOGY, ENGINEERING & MATH (STEM) WORKSHOPS

For K-12 Teachers



Mobile Science Education Consulting Services

Diana Wehrell-Grabowski, Ph.D.
Science Education Consultant

104 North Brevard Avenue
Cocoa Beach, Florida 32931
Phone (321) 799-9004 Fax (321) 783-0777

E-mail: drdianascience@bellsouth.net
Website: <http://drdianateachertraining.com>

What is STEM Education?

STEM education refers to the areas of science, technology, engineering, and mathematics. STEM initiatives were brought about as a means to educate and prepare today's students to enter STEM fields in college. K-12 STEM programs strive to motivate and encourage students to pursue careers in STEM-related fields. The majority of STEM programs have been successful in reaching their goals. However, the "down-side" is that there are too few STEM programs available to meet the needs of the growing number of students that could benefit by a STEM-based education. I have designed a series of *hands-on-minds-on* STEM-based workshops for teachers. These workshops provide a wide-array of hands-on-minds-on-inquiry-based STEM explorations and investigations. The explorations and investigations undertaken during the workshops use readily available and relatively inexpensive materials and supplies. This allows teachers to implement the explorations within their classroom immediately. The following STEM workshops are ideal for those schools wishing you to integrate a STEM-based education within their schools but are lacking the funds required to purchase costly STEM-related materials and equipment. Likewise, the following workshops are ideal for those schools who have established STEM programs, but are seeking on-going professional development for their teachers.

- **All workshops meet national and regional STEM standards.**
- **All workshops engage the participants in challenging explorations and discourse.**

Developing Critical Thinking Skills via Exploring Science, Technology, Engineering, and Math (STEM) Concepts

During this workshop participants will learn how to develop and strengthen critical thinking skills within their students by incorporating science, technology, engineering, and math (STEM) concepts. Participants will conduct numerous hands-on-minds-on explorations that integrate STEM concepts that will help to develop and strengthen critical thinking skills. The use of writing and journaling in the science classroom will be incorporated throughout the in-service. Participants will use *interactive notebooks* during the workshop. Great foundational workshop for teachers of all grade-levels. Concepts and investigations presented vary according to grouping of teacher participants (K-2, 3-5, 5-8, 9-12 or 6-12).



Introducing and Applying the Principles of Biomimicry via STEM-Based Explorations

To introduce the concept of biomimicry (from bios, meaning life, and mimesis, meaning to imitate). Participants will be asked to share their ideas of what man-made inventions they believe are based on models from nature. Biomimicry is a relatively new science. Engineers, scientists and inventors examine models, systems, processes, and elements found in nature, and try to imitate these models in the design of innovative new products. We will begin with exploring many of Leonardo da Vinci's ideas, sketches, models, and inventions that were based on his observations of nature's models.

Throughout the workshop participants will be introduced to many examples of how models from nature have been used by man-kind in designing, building, and manufacturing modern-day inventions to include:

- Air, and sea vessels
- Design in automobile shape, structure, & design
- Sonar and radar
- Material science (building)
- Designs for living (homes & buildings)
- Defense
- Movement and motion
- Tools
- Energy systems
- Inventions based on bio-chemistry models in nature.

Participants will observe examples of all of the above models through hands-on explorations, using simple to complex scientific and mathematical tools to observe and analyze the models.

Participants will make models during the workshop to reinforce concepts and explorations presented during the workshop. These models are based on using readily available materials, including objects from nature. Thus, participants will be able to replicate the explorations within their own classroom with ease.

This workshop is available as a 3 hr, 6hr, or multiple-day institute. To cover all concepts in depth it's highly suggested to schedule a multiple-day institute to allow for more in-depth coverage of content and explorations. This workshop is appropriate for all grade-levels, concepts and explorations will vary according to the grouping of teacher participants. (K-2, 3-5, 6-8, 9-12 or 6-12).



Observing and Analyzing Structures, Shapes, and Patterns In Nature and Man-Made Objects to Reinforce STEM Concepts

Participants will become immersed in exploring science, technology, engineering, and math concepts and principles as they observe, analyze, compare, and contrast objects and organisms from nature, and man-made objects. Participants will use simple to complex scientific tools in their observations and analyses of structures, shapes, and patterns. A major goal of this workshop is to reinforce the importance of *structure and function* in living and physical systems, and apply these observations and principles to STEM concepts. Explorations and investigations to be undertaken, but not limited to include:

- Exploring mathematical patterns in nature including geometric patterns and Fibonacci Sequence. Emphasis is placed on analyzing why these patterns exist.
- Building 3-D geometric structures to explore the behavior of soap film, light waves, and minimum surface area phenomena. These structures will also be used in engineering explorations to test for weight load capacities.
- Botanical explorations –emphasis on survival and seed dispersal.
- Exploring the molecular structure of DNA by making models, using simple materials.
- Extrapolating DNA from fruits and vegetables, using simple materials.
- Constructing solar ovens—emphasis on structure and materials used.
- Constructing structures out of readily available materials including recyclable items and toys. Participants will test structures for strength using weights, water, air, etc.
- Designing and building models that will stay aloft. These models will be made out of readily available materials. Models will be tested for time aloft and aerodynamics.
- Explorations with insulators via designing and constructing a thermos.
- Exploring sound waves & transfer of energy via analyzing the design and engineering of musical instruments. Participants will make an instrument and explain the energy transfer mechanism.

This workshop is most appropriate for grades (4-12). Concepts and explorations will vary according to grouping of teacher participants. Available as a 3 hr workshop, covering select concepts. It's best to schedule this workshop as a 6 hr or multiple-day institute.

