

## **Presentation Briefs: April 24, 2015**

### **11:00 AM - 11:40 AM Concurrent Workshop Sessions**

#### **Engage Girls in STEM with SciGirls**

Presented By: Shayla Mark

Grade Level: M

Many STEM programs and advanced science classes still have low numbers of girls and other underrepresented population in them. We will share research-based strategies and techniques for engaging students in these content areas. As a guide, STEMchicks will present SciGirls' research-based strategies proven to increase girls' engagement in STEM. These strategies include: allowing extended communication and collaboration; finding real-life contexts for science; promoting open-ended investigations; placing value on diverse ways of knowing, viewing and describing the world; providing specific, positive feedback on things girls can control; offering opportunities to think critically about science and engineering; and forming relationships with role models and mentors. Educators will be encouraged to share their own experiences teaching in mixed gender or all girl environments and discuss best practices for engaging girls. All participants will receive handouts that outline strategies, tips for implementation, and resources that emphasizing the importance of encouraging girls at a young age to consider a STEM career to help fill a critical need in our future workforce. Activity Description: Sports + Engineering = Great Fun! Sports engineering focuses on designing, developing, and testing sports equipment, such as balls. When a ball collides with something hard, its shape alters. But if the material used to make the ball is elastic, the ball will return to its original shape, causing it to bounce. Some balls, like basketballs, are very bouncy, and some, like baseballs, hardly bounce at all.

#### **Enduring Effect of Project Based Learning**

Presented By: Abdul Siddiqui

Grade Level: H

Enduring effect of Project Based Learning STEM Mentorship utilizing Project Based Learning is a success for all involved. It facilitates the increase in Engineering / Math / Science caliber for both students and mentors. The investment implemented in mentoring and developing the projects with the students facilitates the sharing of best success oriented practices. These Project Based Learning mentorships provides a well-defined road map from schooling to the work force and also facilitates the tailoring of education to best meet industry trends.

### **Bringing Together the New Curriculum & Industry Using the Comprehension Instructional Sequence Model**

Presented By: Danielly Orozco

Grade Level: M

Technological education should be interesting and fun, focusing on helping secondary students succeed in their careers by cultivating STEM skills. This session will illustrate how new standards can be integrated with CTE programs. A series of hi-tech manufacturing lesson plans brings together the new standards and industry tours using the Comprehension Instructional Sequence (CIS) model in four-day lesson plans. During the CIS lessons facilitate both learning and teaching by building learners' background knowledge in STEM and hi-tech manufacturing topics. They also support development of important critical thinking, writing, research, assessment, and reading skills and are adaptable to other high tech

### **Engineering STEMulating Experiences in the Garden**

Presented By: Mary Lynn Hess, Michelle Pace

Grade Level: E

Bring the excitement of hands-on engineering to your elementary classroom! This interactive experience will emphasize critical thinking, problem solving, collaboration and communication in the transdisciplinary context of STEM. Brainstorm, predict, construct, analyze and test your model for keeping the bunnies out of Mr. McGreely's garden.

### **Intro to Solar Electricity (Photovoltaics)**

Presented By: Susan T. Schleith

Grade Level: E, M

Spark interest and new learning about solar electricity (photovoltaics) through an interactive STEM activity that also requires teamwork, problem-solving and communication skills. Students explore fundamental concepts associated with solar engineering as they assemble and test various photovoltaic system designs in a challenge activity.

### **11:50 AM – 12:30 PM Concurrent Workshop Sessions**

#### **NASA K-12 Interactive Website for Classroom Use**

Presented By: Dr. Lester Morales

Grade Level: E, M, H

NASA has an array of online website tools for students to sharpen their understanding and skills in Earth Science, Math, Literacy, Biology, Aeronautics, Remote Sensing and more. Some of these programs will have National and International opportunities to share data gathered. This session is open to all STEM educators. All tools incur NO charges to districts, teachers, or students.

### **Incorporating SECME into Your Curriculum**

Presented By: Carol Unterreiner

Grade Level: E, M

SECME is a great way to get your students excited about stem. Students get excited about being able to design, build and compete. Without even realizing what they are doing students are learning the engineering design process and with that how to become better thinkers. Come and join us to see how to get your students involved and excited in being a part of SECME. In this session we will show you how to incorporate SECME activities and science, engineering and math standards into your curriculum.

### **What STEM can do in a Math and Science Classroom: Hands on Lessons for the Math and Science Classrooms**

Presented By: Amy Monahan

Grade Level: M

This program will showcase math and science teachers that create STEM lessons that align to the standards in their middle school classrooms. This hands on workshop will take teachers through ready to go lessons used in our district.

### **A Lesson Plan on Oil Spill Solutions**

Presented By: Sona Gholizadeh, Karim Alizad

Grade Level: E

One of the critical threats to marine ecosystem is "Oil spills", which burden environmental expenses on the governments. This lesson plan intended to make the 5th grade students familiar with water resources engineering and environmental planning through analytical approach. This interactive activity gives students an opportunity to develop their understanding of real-world engineering problems, and problem-solving skills.

### **Engineering is Elementary**

Presented By: Jennifer Kinler

Grade Level: E

Participants will explore EiE (Engineering is Elementary) engineering activities designed for facilitation with elementary students. Participants will learn about grant opportunities to bring these programs to their institution.

### **1:45 PM – 2:45 PM Concurrent Workshop Sessions**

#### **Experience STEM with the Reach for the Stars ~ National Rocket Competition**

Presented By: Jack "The Rocketman" Colpas

Grade Level: E, M, H

To get kids interested in STEM subjects - you first have to get their attention. The only thing that gets more attention than a rocket launch - is a rocket competition. Turn your kids on to STEM and honor Christa McAuliffe with the Reach for the Stars ~ National Rocket Competition [www.TheRocketman.net](http://www.TheRocketman.net) – now in its 9th year. Watch as their minds and rockets soar! Safe, Fun

& Affordable. Run by you at your location. No travel expense or hassle. Learn how the Competition can be used as a fund raiser. FREE Rocket Kit (\$20 value) to 20 workshop participants

### **"When am I ever going to use this?" Making Math Meaningful Through STEM Activities.**

Presented By: Alyssa Stagaard

Grade Level: M

This presentation focuses on using STEM activities to make math meaningful. Learn how students can use their mathematical knowledge to solve real-world problems through STEM activities. Are you working with limited resources (money, materials, motivation)? This workshop will give you access to ready-made lessons that tie into the Florida Standards for Mathematics using common household items. We will focus on making connections between the concrete and abstract dimensions of math, while discovering/applying important concepts in algebra, data analysis and geometry. All activities will utilize relevant, accessible technology and the engineering design process.

### **Hello, is it MEA You're Looking For?**

Presented By: Cristina Mrozek

Grade Level: E, M, H

Model Eliciting Activities (MEAs) are often overlooked when teaching STEM. Discover the benefits of using MEAs in your classroom through a hands-on experience! In this session, you will explore an MEA from the perspectives of both student and educator. Take home a lesson plan ready to implement in your classroom and many digital resources.

### **The BYOD Classroom Guide: Leveraging the Power of Technology to Enhance Student Learning**

Presented By: Michelle Perez

Grade Level: E, M

Student's texting in your class? Are phones constantly becoming a distraction? Learn how to use engaging technology that will transform their phones into resources and will reinforce subject material even further. The best part is that you can access these programs for FREE! This workshop shares new technology you can use in your classroom, while modeling how to use them within instruction. Strategies for differentiation and accommodations to student needs are also provided.

### **Experience PLTW Launch in Action**

Presented By: Lanny Wood, Norine Quire

Grade Level: E

Experience the excitement of PLTW Launch, a new, innovative approach that uses PLTW's activity-, project-, and problem-based curriculum in K-5. Prepare for a hands-on experience that exemplifies one of the 24 modules that increases student learning and engagement in STEM. Learn how PLTW Launch sparks curiosity and innovation as it integrates with existing PLTW programs to prepare even the youngest students for the global economy.

## **2:35 PM – 3:15 PM Concurrent Workshop Sessions**

### **Bringing Real World Weather Measurement Problems into the Classroom**

Presented By: George Bartuska

Grade Level: E, M, H

Relating the measurement of the Dew Point, using a Sling Psychrometer, to Weather Forecasting. In this case, predicting Fog in Central Florida and using the Multi-Car-Pile-Ups on I-4 near Winter Haven and the Florida Turnpike near Gainesville as "Hooks" to interest students.

### **Creating an Engaging STEM Experience for 8th Grade Students and with Partners in Education**

Presented By: Stephanie Schnettler

Grade Level: M

Discover how OCPS provided four years of grant-funded STEM learning for teachers and students, and it culminated each year with a competition. The focus of the direct instruction will be on the last year of the grant implementation and how it all culminated in an engaging STEM competition. Next, participants will be taken through the process of customizing an engineering design challenge. Finally, the bulk of the time will be spent allowing participants to experience a smaller version of the competition.

### **The Maker Effect**

Presented By: Candy Cole, Jessica King

Grade Level: E, M, H

We would like to discuss why we believe in the maker movement and why it is important to teach kids using hands on learning techniques, including collaboration and making both inside and outside the classroom. Why are events like Maker Faire Orlando so important why do we spend so much time and energy building up the maker community in Central Florida? Students learn using a variety of modalities and hands on projects enhance their ability to problem solve, think critically, and perform better on tests.

### **STEMMING OUT**

Presented By: John McHale

Grade Level: E

Teaching STEM in the traditional grades and subject classes: Math, Science, and Computers, is occurring with some success in the modern school. However, at Deerwood, we are challenging staff and children to experience STEM in non-traditional settings. Kindergarten classes experience STEM projects on a 6 week rotation. STEM camps have been established during Spring Break and summer at the school. Even during vacations, students participate in at-home STEM modules, designed by grade level, to build enthusiasm and enhance learning. This commitment has paid off in student achievement, as the school is now the preeminent elementary Science program in central Florida.

## **Hands on STEM Math Activities for K-2 Using LEGOs**

Presented By: James C. Jones

Grade Level: E

Participants in this presentation will get an opportunity to do a hands on activity for K-2 STEM math using LEGO® Bricks. By using LEGO® Bricks, participants will see how they can turn abstract concepts of math into hands-on, tangible activities that helps students make real connections to math, while making Math Learning more fun!