

Presentation Briefs: March 3rd, 2017

10:20am – 11:10am Concurrent Workshop Sessions

Creating and Utilizing 3 Act Tasks

Presented by: Jaclyn Myers

Grade Level: E, M, H

Dan Meyer is the creator of the three act task design. He is famous for his techniques and approaches to mathematical thinking and processing. His three act tasks cause students to think about their learning and what they'd like to know. The activities are engaging and require the collaboration of the class as problem solvers. This session will focus not only on resources that are already available but also on building your own unique three act tasks for students to solve!

From Student Ocean Current Drifters to Student Atmospheric Circulation Miniboats

Presented by: George Bartuska

Grade Level: E, M, H

Can you imagine a student being able to add the experience of having conducted oceanographic scientific research to their resume, before they are even old enough to have a driver's license? That is exactly what Mr. Bartuska's ninth-grade Earth Space Sciences classes have done! "Student Built Drifters" and "Miniboats" are both project based- learning experiences that provide: hands-on learning, technology interface to computer modeling, and a chance to interact with Marine Science and Oceanography professionals from the USF's College of Marine Science.

The Florida Aquifer, Lakes and Sinkholes

Presented by: Laura Schendel

Grade Level: M

Central Florida is riddled with lakes. Where did they come from? Engage students in the amazing world of sinkholes. Learn how to create a simple model in your classroom to demonstrate how sinkholes form. Create an edible aquifer as a fun summative activity for your class. Limit: 30 participants

Robotics in the Elementary Classroom

Presented by: Amy Trujillo

Grade Level: E

Explore the myriad of robots that can be integrated into elementary classrooms. Participants will see examples of how robots have been used, receive lesson plans, and have the chance to try out some of the robots, including the Finch robots!

Access and Opportunity in STEM for Minority and Low-Income Students

Presented by: Nicole Bronson, Brian Agard, and Daniel Martinez

Grade Level: M, H

Studies have shown that students who complete advanced-level mathematics courses are better positioned to finish college and pursue careers in science, technology, engineering and mathematics (STEM). Orange County's Calculus Project places minority and low-income students on a trajectory for advanced-level mathematics courses beginning with Algebra acceleration in middle school. This session will focus on how the Algebra and Geometry portions of the Calculus project place students on the path for success.

STEM Centers for K-5

Presented by: Mallory Young

Grade Level: E

Do you like using center rotations in your classroom? Learn how to make your center rotations hands-on and engaging through STEM. Examples and ideas for centers in Science, Technology, Engineering, and Math will be presented. Teachers will have the opportunity to manipulate some of the materials used in STEM centers at the end of the presentation.

11:20am – 12:10pm Concurrent Workshop Sessions

The Toothpick Factory (TPF) is hiring! - A Soft Skills Simulation Game

Presented by: Danielly Orozco and Jesse Kokotek

Grade Level: H

Employers consistently have a demand for qualified employees. As difficult as finding and hiring new employees might be, retaining them becomes a greater challenge due to inadequate soft skills. FLATE, Center for Advanced Technology Education, designed The Toothpick Factory (TPF)[®] in response to this soft skills competency gap. The TPF is a hands-on simulation game that allows participants to become aware and reflect upon a set of soft skills affecting teamwork. During this session, participants will challenge their teamwork skills through a series of “demands” put on their team. Each team member has a specific role and working together is the key. Limit: 24 participants

Enduring Effect of Project Based Learning

Presented by: Abdul Siddiqui

Grade Level: M, H

The presentation and robotics hands on experience will highlight the benefits of Project Based Learning. The observations that are captured in the presentation are based on the High School Engineering Internship and Robotics Teams the US Army PEO STRI has supported. The High School Internship is intended to be a practical approach for mentoring high school students in developing and incorporating processes needed for accomplishing successful technical projects. The Robotics Teams mentoring is the best process for implementing the lessons for successful project development and management in a competitive environment.

Mad Science: Making STEM Edu-taining!

Presented by: Kylie Koscoe

Grade Level: E

Join Mad Science in learning how to incorporate STEM in your classroom on a daily basis! Mad Science is on a mission to spark the imagination of children everywhere with exciting, live, and interactive programs that instill a clear understanding of what science is really about, and how it affects the world around us. Chief Mad Scientist Kylie Koscoe will show you how to make Science fun and hands-on for your students, using easy to find materials and everyday Science concepts. Learn more at CFL.MadScience.org

Robots: Easy Application for Cross Curricula Integration

Presented by: JoAnn Archer and Lynda Roche

Grade Level: E

If you have always wanted to try using robots in your classroom or if you are looking for some new ideas to use robots in your curriculum, then this is the session for you! In this session, you will try several lesson plans where students use familiar classroom robots and associated programming to model content or solve an engineering challenge. In this session, you will rotate through standards based activities that utilize Beebots, Dash & Dots, LEGO Wedo, and LEGO EV3's. Teachers, this is an easy to learn and captivating way to get the "T" in STEM into your classroom!

Expanding Engineering Education in K-8

Presented by: Larry Plank and Joseph Simmons

Grade Level: E, M

This session will detail Hillsborough County Public School's experience in the 100Kin10 fellowship. HCPS is one of 12 school districts to go through the 100Kin10 engineering fellowship. This fellowship included expanding engineering and design challenges, increasing access and equity within engineering education, and developing a district-wide strategic plan for engineering education. This session will detail lessons learned, helpful tips, partner organizations, and other reflections of a large district tackling the nuances of STEM education in an age of standards and accountability.

Creative Ways to Integrate College and Career Readiness Activities into your K-12 Classroom Curriculum

Presented by: Stacy Van Horn and Christopher Belser

Grade Level: E, M, H

This presentation session will expose K-12 classroom teachers to various strategies and activities that focus on career awareness and career development while connecting to the class curriculum. In particular, connecting the focus on STEM-related fields with activities that are developmentally appropriate for elementary, middle, and high school students. This will be a fast paced, interactive session that will enable classroom teachers to learn about and brainstorm strategies that can be taken back to their schools.

1:05pm – 1:55pm Concurrent Workshop Sessions

Simulation as Supplementation

Presented by: Peter McCormick

Grade Level: M

I will demonstrate that there are several free web sites with simulators that can be used to differentiate content, while enhancing the learning experience for students. I will review a few simulation activities found in the PhET family of simulations from the University of Colorado. Accompanying the presentation will be a short lesson plan and demonstration of how it may be used in conjunction with an Engineering activity or reinforcement of already presented content.

Lessons Learned: Integrating Computer Science into the Elementary Day

Presented by: Dr. Lisa Milenkovic, Debra Kelly Thomas, and Annmargareth Marousky

Grade Level: E

In this session participants will be engaged in activities from the integrated STEM + Computer Science (CS) problem-based learning (PBL) units that were developed through National Science Foundation (NSF) grant (No. 1542842). These units integrate computer science with core subject areas and focus instruction around a real-world problem to make learning relevant, improve student critical thinking, problem solving, and engagement and expose students to the field of CS. Lessons learned from our work will be discussed, including research findings, curriculum, professional development, school and teacher support, as well as the barriers/challenges and successes of CS integration at the elementary level.

Ocean Profile Sampling and Graphing

Presented by: Rosemary Rizzo

Grade Level: H

In this lab the students will use a mini-ocean model to gather data on the topography of the model ocean floor then create a graph of the topography of their mini-ocean. This is done with materials that are easy to acquire and covers concepts such as: sonar technology, ocean floor topography, creating models, graphing using collected data and analysis of graphs.

Circuit Bugs: An Investigation in the Flow of Electricity

Presented by: Michelle Roberts and Denise Touchberry

Grade Level: E, M

A hands-on Engineering Design Challenge that investigates the flow of electricity in a parallel circuit. Participants will create and take home a fuzzy, friendly bug that lights up.

Integrative STEM Lesson Planning

Presented by: Christine Danger

Grade Level: E, M

STEM can be integrated into any content area! Teachers will be given STEM Integrative and Model Eliciting Activity lesson planning templates and try out portions of lessons written using these formats. The lesson planning tools include the how and why of writing integrative, hands-on, minds on, engaging STEM lessons. The templates and tools are designed to help teachers to find, evaluate, and design relevant, real world, engaging, standards based, integrative STEM lessons. Teachers will be given web links to access a variety of lessons written with these templates.

Seeing the World of the Very Small or Finding the Ocean Depths!

Presented by: John Clark

Grade Level: H

Experience a lab that allows students to simulate the function and data analysis of an Atomic Force Microscope to see the world of the atom. The lab set up can be built from household materials: shoebox, pencils, and play dough. A variation of this lab, using the same equipment, can be used in marine science to map ocean floor topography. Both are great labs to engage students in real world driven research. Instructions, power points and worksheets will be provided.

2:05pm – 2:55pm Concurrent Workshop Sessions

Take an Engineering Adventure

Presented by: Nicole Rivera

Grade Level: E

Children engineer informally all the time; they are fascinated with building things, and with taking things apart to see how they work. By encouraging these explorations in elementary school, we can keep these interests alive. Participants will be introduced to Engineering Adventures (EA), a free curriculum available for download developed by the Museum of Science, Boston. Working in small groups, participants will engage in an engineering design challenge from the learner's perspective. Participants will reflect on their experience as teachers and discuss how to utilize the EA curriculum with their own students!

Engineering Across the Curriculum

Presented by: Rachel Knight

Grade Level: E

Need ideas on how to incorporate STEM activities across the curriculum using the Engineering Design Process? Does STEM seem like just one more thing to do? How can I get ideas or lesson plans on what to do? Attendees will try out ideas that can easily be integrated in the classroom across the curriculum. Whether you are teaching Reading, Math, Social Studies or Science, STEM activities help students learn the skills of working together to find solutions to a problem.

Teaching Radio, Electricity, and Electronics via Audio Gaming

Presented by: Walter Legan

Grade Level: E

Learn how to get Grade 4 - 6 students started on their amateur Electrical Engineering careers today, in a substantial, continuous program that can lead them to "Building Your Own Radio Station" and further, all for Free. This session will begin with a 20-minute demonstration on how a radio works, and then all attendees will learn how to play the audio game that is basic to the program.

Natural Designs Using Biomimicry

Presented by: Mary Lynn Hess

Grade Level: E

Challenge your students to stretch their imaginations by using biomimicry. This hands-on session will emphasize critical thinking, problem solving, collaboration and communication in the transdisciplinary context of STEM. Get ready to brainstorm, predict, construct, analyze and test your new creation!

Develop Your Own STEM Lesson

Presented by: Michael Clark

Grade Level: M

Have you been wanting to create a hands-on STEM lesson that is aligned to a math or science standard but are just not sure where to start? No problem! In this session you will start off by making improvements to an existing math STEM lesson that follows a user friendly STEM lesson template. Then you will select a math or science standard that you would like to introduce in your own classroom and develop a hands-on activity around that middle grades standard.

More Than Your average Engineering Design Challenge - How Science and Math Make it Happen!

Presented by: Jennifer Borges and Letizia Branz

Grade Level: M, H

Come join us for an exciting session where we investigate the importance of Science and Math in Engineering through a STEM activity that can be accommodated to meet several different middle and high school Science and Mathematics classrooms.