

Children's Engineering Convention 2010

Breakout Session Descriptions

Thursday, February 25, 2010

6:30 – 7:30 PM

Thank You!

*Wendi Hobbie, Art Teacher, & Elizabeth Kirk, 2nd Grade Teacher
Woolridge Elementary School, Chesterfield County*

There are many occasions to say thank you or congratulations. Why not use children's engineering to do just that? Participants will receive a hands-on experience as well as pre-made design briefs to use with any grade level and subject. We will also discuss ways to collaborate with resource teachers when working with children's engineering.

K-5

Children's Engineering Across the Curriculum

*Lindsey Hurlburt, Art Teacher – K-5, & Claudia Ketcham, 3rd Grade Teacher
Crestview Elementary School, Henrico County*

Teachers will leave this session with a number of children's engineering lesson plans and examples that integrate science, math, language arts, and visual arts SOLs.

2-3

KEVA Planks Contraptions

*Charlotte Holter & Linda Harpine, Gifted Education Resource Teachers
Rockingham County*

A hands-on workshop for those who want to explore working with KEVA planks contraptions presented by teachers who have implemented ideas into their classrooms.

1-5

Engineering for All Seasons

*Martha Smith, 1st Grade Teacher, J. B. Watkins Elementary School, &
Patricia Sutton 1st Grade Teacher, Evergreen Elementary School
Chesterfield County*

Participants will complete a design challenge easily integrated into the K-2 classroom and will be given additional design challenges for use in their classrooms.

K-2

Integrating Math into the "Engineering is Elementary" Curriculum

*Patricia Watson, PhD Student in Integrative STEM Education
Virginia Tech, Blacksburg*

Participants will see how the presenter added Virginia math SOL activities in two "Engineering is Elementary" units to make integrated STEM curricula. They will choose a unit to begin to make math connections.

1-5

Friday, February 26, 2010

8:30 – 9:30 AM

Introduction to Children's Engineering

*Linda Harpine, Gifted Education Resource Teacher
Rockingham County*

Everything you wanted to know about Children's Engineering, but were afraid to ask, will be presented in this session: historical background, how children's engineering works for *all* students in the classroom, available resources, relatable research, teacher training and more.

K-5

Pop-Up Workshop

*Debbie Popp, 2nd Grade Teacher, W. W. Gordon Elementary School, &
Christopher Lee, 1st Grade Teacher, Crenshaw Elementary School
Chesterfield County*

Discover how engineering can become part of what you are already doing with card design. This is a hands-on workshop about various pop-up techniques. Learn how to make several pop-ups and leave with ideas on how pop-ups can be integrated into your current curriculum.

1-5

Starting an After School Engineering Club at Your School

*Destine Bradshaw, Gifted Resource Teacher, Widewater Elementary School, &
Peg York, FOCUS Resource Teacher, Rockhill Elementary School
Stafford County*

This presentation will cover where to start (target audience, funding, duration); examples of two club sessions (bridges & roller coasters); hands-on experience for attendees; Q & A.

1-5

Edible Engineering in the Classroom

*Jennifer Davis, 2nd Grade Teacher, & Martella Buggs, 2nd and 3rd Grade Inclusion Teacher
Campostella Elementary School of S.T.E.M., Norfolk*

The purpose of this presentation is to show fellow educators how to create edible engineering projects for students. In this session, educators will learn how to enhance the second grade social studies curriculum by having students create an edible map of the United States of America with mountains and rivers.

2-3

Implanting STEM Components into K-5 Classrooms with an Engineering Focus

*Michele Thompson, Math/Science Resource Teacher
Rhonda Epps, Communication Skills Specialist
LaKiesha Jolley-Washington, Instructional Specialist
Wartika Scott, STEM Resource Teacher
Campostella Elementary School of S. T. E. M., Norfolk*

Participants will receive information on how Campostella Elementary School became a School of Science, Technology, Engineering and Mathematics and integrated engineering concepts into the state and district curriculum.

K-5; Administrators

10:00-11:30 AM

Gravity Racers: Investigating Motion

*Dr. Dawn R. Wilcox, Science Coordinator, &
Shannon Roberts, 4th Grade Teacher, Cedar Forest Elementary School
Spotsylvania County*

Join us as we show you how to help young students understand force, motion, and energy. This session outlines a design challenge scenario in which students design and create their own gravity-powered vehicles.

1-5

Using Math and Language Arts to Build Castles

*Mary Hunter Ayer, 5th Grade Teacher, J. B. Watkins Elementary School
Chesterfield County*

Enrich your social studies class by building 3-D castles using math and language skills. Learn how to incorporate a working drawbridge into a medieval castle.

4-5

Thinking Like Designers

*Sharon Brusica, Associate Professor, Millersville University
Millersville, PA*

How can you get children to be more reflective about the designed world and more creative or thoughtful as they solve technological problems? Gather some new strategies to promote children's design thinking.

3-5

Summer Engineering Camp

*Diane Leighty, Mathematics Coordinator K-12, & Anne Larrick, Science Coordinator
Powhatan County*

The presenters will share Powhatan's success story: Running a successful 1-2 week summer engineering camp for elementary and middle school students including staffing, activities, scheduling, and other logistics.

2-5; Administrators

Administrative Panel Discussion

Administrators

1:45 – 3:15 PM

Engineering for a Sustainable World

*Larry G. Richards, Professor, Mechanical & Aerospace Engineering
University of Virginia, Charlottesville*

For several years, UVA Engineers have brought Engineering Teaching Kits (ETKs) into science and math classrooms. The kits are designed to show students the excitement and fun of engineering, from making environmentally friendly vehicles (hovercrafts and solar cars) to designing and building dwellings that would protect penguins from global warming.

3-5

The Toothpick Factory: Simulation Game for Team Building & Problem Solving

Marilyn Barger, Executive Director

Florida Advanced Technological Education Center (FLATE), Tampa

The Toothpick Factory is a simulation game (hands-on) to develop and focus teamwork, interpersonal skills, and problem solving. This workshop will include an activity overview, an active “short shift” experience, how to introduce “stress” to the teams, quantifying production rates, as well as coaching on how to facilitate a debriefing session with students.

4-5

Inspiring Girls in Math and Science

Heather Jewell, Advanced Academic Resource Teacher, Cameron Elementary School, &

Linda Martin, Advanced Academic Resource Teacher, Dogwood Elementary School

Fairfax County

This workshop is for those interested in starting a Girls Excelling in Math and Science club at their own schools. The GEMs club allows 3rd - 6th grade girls to explore hands-on science, technology, engineering, and math concepts and encourages them to develop an interest and better understanding of STEM options for their future studies.

3-5

LEGO WeDo: Introducing Primary Students to Robotics with the Concept of Systems

Steve Coxon, Assistant to the Editor, Journal for the Education of the Gifted

College of William and Mary's Center for Gifted Education, Williamsburg

LEGO WeDo is a new robotic system designed for primary age children. This session will both review how WeDo was utilized in a 15-hour summer program for first through third graders and provide an interactive demonstration of the drag-and-drop block programming language.

K-3

Creating an Engineering-Focused STEM Elementary School

Arthur W. Bowman, Professor/Science Center Director

Norfolk State University, Norfolk

Essentials for creating an elementary school having a comprehensive Science, Technology, Engineering, and Mathematics (STEM) focus will be shared, with the Campostella Elementary School in Norfolk, VA, being a model.

1-5; Administrators

3:45 – 4:45 PM

FIRST LEGO League: Starting a Competitive Team

*Steve Coxon, Assistant to the Editor, Journal for the Education of the Gifted
College of William and Mary's Center for Gifted Education, Williamsburg*

An overview of starting a FIRST LEGO League team will be provided with tips and strategies from a five-year veteran coach who has also served as a state competition robot design judge and a regional competition head judge.

4-5

Engineering the Pico Park

*Beth Kappus, Educator, MathScience Innovation Center
Richmond Public Schools*

Design and build an object that might be in a park. Using PicoCricket kits, learn how sensor technology can transform energy to make that object move. Students are involved in problem solving, technology, and engineering in this activity.

1-5

Tricks and Tips to Get You Started

*Christopher S. Lee, 1st Grade Teacher, Crenshaw Elementary School, &
Debbie Popp, 2nd Grade Teacher, W. W. Gordon Elementary School
Chesterfield County*

K-2 teachers new to Children's Engineering will learn tricks and tips to help begin to implement the different parts of the design loop. Teachers will also learn how to turn ordinary art projects into extraordinary design projects.

K-2

The Status of Technology Education Requirements in Pre-service Elementary Teacher Education

*Roger Skophammer, Visiting Assistant Professor
Old Dominion University, Norfolk*

In this session, a short summary of the presenter's study will be given. Then participants will engage in "hands-on" examples of pre-service activities and get feedback as to what practicing teachers believe would be important in pre-service elementary education programs.

1-5; Administrators

Zoom: An Inventor's Perspective

*Charlotte Holter, Gifted Education Resource Teacher, Rockingham County
Emily Leake, Graduate Student, Virginia Tech, Blacksburg*

Sabrina Provencher, PhD student, STEM education, Virginia Tech, Blacksburg

Utilizing the book *Zoom* by Istvan Banyai, concepts will be explored by finding interrelationships among science, math, engineering, and technology – STEM. Using observation, prediction and hypothesis students will explore elementary concepts of geometry, measurement, and the engineering design process. A lesson will be demonstrated through a hands-on activity that will allow participants to experience the connections.

2-4