2012 NWO Symposium

on Science, Technology, Engineering, and Mathematics Teaching

Saturday, October 27, 2012

Olscamp Hall @ Bowling Green State University

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching

www.nwocenter.org/nwoSymposium

Welcome

We are delighted to once again welcome you to the 2012 Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching. The symposium is sponsored by the Northwest Ohio Center for Excellence in STEM Education (NWO) and its partners throughout the region. This event offers a valuable opportunity for P-16 educators to share and learn from one another in our common effort to advance science, technology, engineering, and mathematics (STEM) education for people of all ages.

Last year we had more than 300 attendees at this event, including in-service and pre-service teachers, higher education faculty, graduate and undergraduate students, and business and community partners participating in more than 60 sessions. This year, vendors will again participate so as to keep educators abreast of new and exciting classroom materials and opportunities. Additionally, attendees will be allowed to examine new textbooks, pick up equipment for classroom use, and preview some of the new classroom technologies now available.

We hope that you find the 2012 Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching to be an even more beneficial experience than last year. With your help, we will continue to make this symposium the premier STEM professional development opportunity for educators in Northwest Ohio. Thank you for joining us!

Dr. Bob Midden
Director
NWO/COSMOS, BGSU

Jessica Belcher
Assistant Director
NWO/COSMOS, BGSU

NWO
Northwest Ohio Center for Excellence in STEM Education

COSMOS
Center Of excellence in Science and Mathematics education: Opportunities for Success

BGSU

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Conference Agenda

7:30 – 8:30 am . . . . . Registration (Outside Room 101)

8:00 – 9:45 am . . . . . Breakfast (Room 101)

8:30 – 9:45 am . . . . . Welcome and Keynote Address

10:00 – 10:50 am . . . . . Block A

11:00 – 11:50 am . . . . . Block B

11:50 am – 12:40 pm . . . Lunch

12:50 – 1:40 pm . . . . . Block C

1:50 – 2:40 pm . . . . . Block D

2:50 – 3:40 pm . . . . . Block E

Vendor Area Open from 8:00 am – 12:40 pm

EVALUATION of Symposium

Please complete the online evaluation for the 2012 Symposium.
All who complete the survey will be entered into a drawing
for a $25 Amazon.com gift card.

Please go to the following website to complete the online evaluation:
www.nwocenter.org/nwoSymposium

Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching

Sessions At A Glance by Block

Block A: 10:00 – 10:50 am

A1 Get Focused on STEM

Presented by: Rob Smith, DEPCO, LLC

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 106

Strand: Putting Creativity to Work: Teaching STEM With Innovation

A2 Toledo Technology Academy - A Different Model for Education

Presented by: Gary Thompson, Toledo Technology Academy
Joseph Choate, General Motors

Grade Levels: 9 - 12 ***Room:*** 223

Strand: Putting Creativity to Work: Teaching STEM With Innovation

A3 Active Learning & The Joy of Teaching Large Lecture Hall Classes

Presented by: Paul Cesarini, BGSU – College of Technology

Grade Level: College ***Room:*** 115

Strand: Inquiry in the College Classroom: Enhancing the Undergraduate Experience

A4 & B4 Playing with Parachutes (Double Session – Blocks A & B: 10:00 – 11:50 am)

Presented by: Alayne Schrock, Ada Schools

Grade Levels: 5 – 8 ***Room:*** 117

Strand: Teaching and Learning in ENGINEERING

A5 Frog Watch USA: Leap into Citizen Science

Presented by: Matthew Partin, BGSU – Department of Biological Sciences
Eileen Underwood, BGSU – Department of Biological Sciences

Grade Levels: 5 - 8, 9 - 12, College, Community Partners ***Room:*** 120

Strand: STEM in the Community: Thinking Outside the Classroom

A6 The Learning is in the Layers: Stratalogica and TRUE 21st Century Skills

Presented by: Trevor Walsh, Herff Jones | Nystrom

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 121

Strand: Integrating Technology in the Classroom

A7 Digital Creations for Primary Grades

Presented by: Amy Contos, Kateri Catholic Academy

Grade Levels: PreK - 4 ***Room:*** 203

Strand: Integrating Technology in the Classroom

Block A: 10:00 – 10:50 am continued

A8 Halloween at Hogwarts

Presented by: Kim Cortez, Arlington High School
Molly Niese, Arlington High School

Grade Levels: 9 - 12 ***Room:*** 205

Strand: Teaching and Learning in SCIENCE

A9 Implementing the New Science Standards in a Safe Classroom Environment (LIMIT 20)

Presented by: Janet Struble, NSTA/Science Education Council of Ohio (SECO)
Mikell Lynne Hedley, Science Education Council of Ohio (SECO)

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 207

Strand: Teaching and Learning in SCIENCE

A10 Examining Model Curriculum in Mathematics: 5th Grade [(CO)^{2}RES Secondary]

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 5 ***Room:*** 211

Strand: Teaching and Learning in MATHEMATICS

A11 Examining Model Curriculum in Mathematics: 7th Grade, 8th Grade, and Special Education

Presented by: (CO)^{2}RES Teacher Participants

Grade Levels: 7 - 8, Special Education ***Room:*** 213

Strand: Teaching and Learning in MATHEMATICS

A12 Examining Model Curriculum in Mathematics: Kindergarten

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: Kindergarten ***Room:*** 215

Strand: Teaching and Learning in MATHEMATICS

A13 Examining Model Curriculum in Mathematics: 3rd Grade

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 3 ***Room:*** 217

Strand: Teaching and Learning in MATHEMATICS

A14 & B13 Physical Science Modeling Instruction (Double Session – Blocks A & B: 10:00 – 11:50 am)

Presented by: Nate Ash, Perrysburg High School
Blythe Tipping, Sylvania Southview High School

Grade Levels: 9 - 12 ***Room:*** 219

Strand: Teaching and Learning in SCIENCE

Block B: 11:00 – 11:50 am

B1 It's Not All Fun and Games: The Challenge of Teaching Essential Mathematics for 3D Game Design

Presented by: Jerry Schnepp, BGSU – Visual Communication & Technology Education

Grade Levels: 9 - 12, College ***Room:*** 106

Strand: Putting Creativity to Work: Teaching STEM With Innovation

B2 Adventures in Science: Building a love for science that lasts past science class! (LIMIT 20)

Presented by: Heather Janes, Lake Local School

Grade Levels: 3 - 5 ***Room:*** 120

Strand: Teaching and Learning in SCIENCE

B3 Meeting The Challenges of Beginning STEM Majors - It's All About Engagement

Presented by: Andy Jorgensen, The University of Toledo

Grade Level: College ***Room:*** 115

Strand: Inquiry in the College Classroom: Enhancing the Undergraduate Experience

B5 iPads, STEM, & Challenge Based Learning

Presented by: Leah LaCrosse, Huron City Schools

Grade Levels: 5 - 8 ***Room:*** 121

Strand: Integrating Technology in the Classroom

B6 I Really Did Study

Presented by: Debra Bercher, Lourdes University

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** 203

Strand: Teaching and Learning in SCIENCE

B7 Toledo Zoo's Learning through Play

Presented by: Josh Minor, The Toledo Zoo
Nicole Syrek, The Toledo Zoo

Grade Levels: PreK - 4 ***Room:*** 205

Strand: STEM in the Community: Thinking Outside the Classroom

B8 Complexity Made Simple: Modeling Dynamic Systems To Foster Creative, Critical, and Quantitative Thinking

Presented by: Jon Darkow, Seneca East High School

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** 207

Strand: Teaching and Learning in SCIENCE

Block B: 11:00 – 11:50 am continued

B9 Examining Model Curriculum in Mathematics: 6th Grade

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 6 ***Room:*** 211

Strand: Teaching and Learning in MATHEMATICS

B10 Examining Model Curriculum in Mathematics: 9th – 12th Grade

Presented by: (CO)^{2}RES Teacher Participants

Grade Levels: 9 - 12 ***Room:*** 213

Strand: Teaching and Learning in MATHEMATICS

B11 Examining Model Curriculum in Mathematics: 1st Grade

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 1 ***Room:*** 215

Strand: Teaching and Learning in MATHEMATICS

B12 Examining Model Curriculum in Mathematics: 4th Grade

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 4 ***Room:*** 217

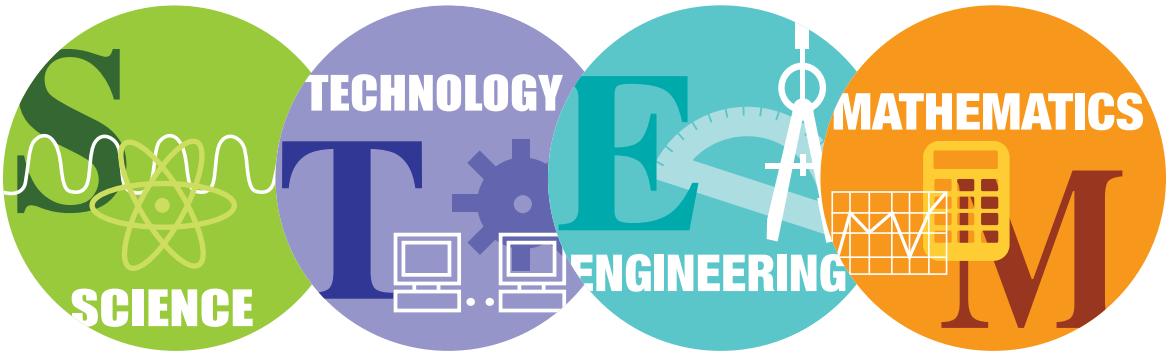
Strand: Teaching and Learning in MATHEMATICS

B14 Teaching Simple Machines, Force and Motion and a little Energy, using LEGO®

Presented by: Ivery Toussant, Jr., LEGO® Education

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 223

Strand: Putting Creativity to Work: Teaching STEM With Innovation



Block C: 12:50 – 1:40 pm

C1 Learning Through The Inquiry Cycle and Play

Presented by: Jerran Orwig, The Toledo Zoo

Grade Levels: PreK - 4, 5 - 8, 9 - 12, College ***Room:*** 106

Strand: Putting Creativity to Work: Teaching STEM With Innovation

C2 & D2 Great Science on the Great Lakes: OSU's Stone Laboratory (Double Session – Blocks C & D: 12:50 – 2:40 pm)

Presented by: Christopher Winslow, OSU Stone Laboratory
Sue Bixler, OSU Stone Laboratory

Grade Levels: 5 - 8, 9 - 12, Informal Educators ***Room:*** 111

Strand: STEM in the Community: Thinking Outside the Classroom

C3 & D3 The Tsunami Model Eliciting Activity: A Free, Hands-On, Active, Real-World Curriculum to Introduce Engineering in K-12 (Double Session – Blocks C & D: 12:50 – 2:40 pm)

Presented by: Ken Reid, Ohio Northern University
Christine Floyd, Eastwood Middle School

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 117

Strand: Teaching and Learning in ENGINEERING

C4 Using PLEs (Personal Learning Environments) for Any Student

Presented by: Sharon Shaffer, BGSU – College of Education

Grade Levels: 5 - 8 ***Room:*** 120

Strand: Integrating Technology in the Classroom

C5 Case Study: Strategies Modeling and Reading Together Through Integrating Science (SMARTTIS)

Presented by: Andrea Milner, Adrian College
Vanessa Morrison, Adrian College

Grade Levels: PreK - 4, 5 - 8 ***Room:*** 121

Strand: Putting Creativity to Work: Teaching STEM With Innovation

C6 Using Fossils to Engage Students in Science Learning

Presented by: Peg Yacobucci, BGSU – Geology Department and Paleontological Society

Grade Levels: PreK - 4, 5 - 8 ***Room:*** 203

Strand: Teaching and Learning in SCIENCE

Block C: 12:50 – 1:40 pm continued

C7 STEMM Summer Camp hosted by UT StACS

Presented by: Amber Hall, UT Student, American Chemical Society
Edith Kippenhan, UT Student, American Chemical Society
Brenda Snyder, UT Student, American Chemical Society

Grade Levels: 9 - 12 ***Room:*** 205

Strand: STEM in the Community: Thinking Outside the Classroom

C8 & D8 Bringing the Nano-World to Life: Computer Simulation for Everyone (LIMIT 20)

(Double Session – Blocks C & D: 12:50 – 2:40 pm)

Presented by: Neocles Leontis, BGSU – Chemistry Department, College of Arts & Sciences

Grade Levels: 9 - 12, College ***Room:*** 207

Strand: Integrating Technology in the Classroom

C9 Cancellation Is a Property of Groups, Not of Fractions

Presented by: Donald Czarcinski, Lourdes University

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 211

Strand: Teaching and Learning in MATHEMATICS

C10 Examining Model Curriculum in Mathematics: 2nd Grade

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 2 ***Room:*** 215

Strand: Teaching and Learning in MATHEMATICS

C11 Model Curriculum in Mathematics: 5th Grade [$(CO)^2$RES Elementary]

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 5 ***Room:*** 217

Strand: Teaching and Learning in MATHEMATICS

C12 & D10 Using Technology To Boost Student Learning Of Energy Concepts (LIMIT 20)

(Double Session – Blocks C & D: 12:50 – 2:40 pm)

Presented by: Janet Struble, UT LEADERS
Stacy Maynard, UT LEADERS

Grade Levels: PreK - 4, 5 - 8 ***Room:*** 219

Strand: Integrating Technology in the Classroom

Block C: 12:50 – 1:40 pm continued

C13 Learning with LEGOs (LIMIT 20)

Presented by: Kelisa Boden, Perrysburg Schools
Kirstina Roberts, Otsego Local Schools
Robin Cangelosi, Strongsville City Schools

Grade Levels: 5 - 8 ***Room:*** 223

Strand: Putting Creativity to Work: Teaching STEM With Innovation

C14 & D12 Energy Education 101 (Double Session – Blocks C & D: 12:50 – 2:40 pm)

Presented by: Debby Yerkes, Ohio Energy Project

Grade Levels: 5 – 8, 9 - 12 ***Room:*** 213

Strand: Teaching and Learning in SCIENCE

Block D: 1:50 – 2:40 pm

D1 Seeing STEM at Work

Presented by: Beth Hench, Putnam County Educational Service Center

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 106

Strand: Putting Creativity to Work: Teaching STEM With Innovation

D4 The Flipped Classroom: What Is It and How Can I Use It?

Presented by: Dave Harms, Penta Career Center

Grade Levels: 9 - 12 ***Room:*** 120

Strand: Integrating Technology in the Classroom

D5 Animals in the Classroom

Presented by: Elizabeth Overmier, Electronic Classroom of Tomorrow

Grade Levels: 9 - 12 ***Room:*** 121

Strand: Teaching and Learning in SCIENCE

Block D: 1:50 – 2:40 pm continued

D6 Trip, Trap, Trip, Trap. . . .Who Is That Under the Bridge?

Presented by: Karen Mitchell, Metroparks of the Toledo Area
Heather Norris, Metroparks of the Toledo Area

Grade Levels: PreK - 4 ***Room:*** 205

Strand: Teaching and Learning in SCIENCE

D8 An Exploratory Approach to Algebra

Presented by: Sandra Zirkes, BGSU – Department of Mathematics and Statistics
Lindsey Haubert, BGSU – Department of Mathematics and Statistics

Grade Levels: 9 - 12 ***Room:*** 211

Strand: Teaching and Learning in MATHEMATICS

D9 It's About Discovery: An Innovative Curriculum with a Focus on Energy Sustainability

Presented by: Dean Cristol, The Ohio State University
Brittany Collier-Gibson, The Ohio State University
David Pepple, Wapakoneta High School

Grade Levels: 9 - 12, College ***Room:*** 215

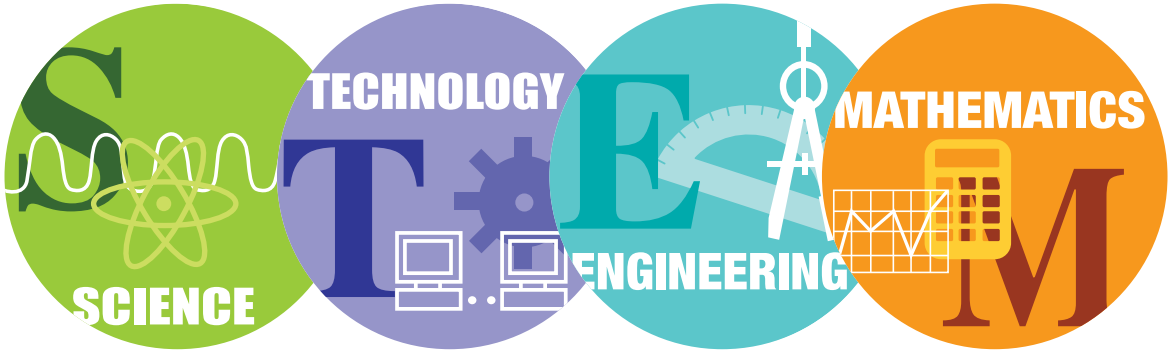
Strand: Putting Creativity to Work: Teaching STEM With Innovation

D11 Launching Excitement in STEM Education at the Challenger Learning Center of Lake Erie West

Presented by: Reed Steele, Challenger Learning Center

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 223

Strand: STEM in the Community: Thinking Outside the Classroom



Block E: 2:50 – 3:40 pm

E1 What exactly IS Project-Based Learning and why should I care?

Presented by: Susan Bastian, St. Joseph School

Grade Levels: PreK - 4, 5 - 8, 9 - 12, College ***Room:*** 106

Strand: Putting Creativity to Work: Teaching STEM With Innovatin

E2 Literacy Design Collaborative/College Ready Tools/An Introduction

Presented by: Paul Daugherty, Perkins Local Schools
Hope Ann Wallace, Perkins Local Schools
Christopher Walton, Perkins Local Schools
Jeff Harbal, Perkins Local Schools
Michael Schultz, Perkins Local Schools

Grade Levels: 9 - 12 ***Room:*** 111

Strand: Putting Creativity to Work: Teaching STEM With Innovation

E3 Project Wild: Growing Up Wild (LIMIT 20)

Presented by: Gloria Gajewicz, Project Wild
Kristie Reighard, Project Wild

Grade Levels: PreK - 4 ***Room:*** 117

Strand: Teaching and Learning in SCIENCE

E4 COLLABORATIVE ACTION RESEARCH: Testing & Then Reporting the Visualization and Processing Speed of NWO Symposium presenters, exhibitors, and attendees

Presented by: Richard Oldrieve, Oldrieve Research & Consulting
Cynthia Bertelsen, BGSU – School of Teaching & Learning

Grade Levels: PreK - 4, 5 - 8, 9 - 12, College ***Room:*** 119

Strand: Putting Creativity to Work: Teaching STEM With Innovation

E5 Integrating Technology in Academic Classes

Presented by: Dave Harms, Penta Career Center

Grade Levels: 9 - 12 ***Room:*** 120

Strand: Integrating Technology in the Classroom

E6 Hands-On Optics and Biology

Presented by: Carol Heckman, BGSU – Department of Biological Sciences
Chelsea Zhang, BGSU
Francis Bugyei, BGSU

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 121

Strand: Teaching and Learning in SCIENCE

Block E: 2:50 – 3:40 pm continued

E7 Video Creation To Reinforce Learning

Presented by: Christian Rogers, BGSU – College of Technology

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 203

Strand: Integrating Technology in the Classroom

E8 Inquiry Based Learning - an Avatar's Perspective

Presented by: Robert Williams, Air Force Research Laboratory

Grade Levels: 9 - 12, College ***Room:*** 205

Strand: STEM in the Community: Thinking Outside the Classroom

E9 Twitter, Skype, Edmodo: Connecting our Learners (LIMIT 20)

Presented by: Leah LaCrosse, Huron City Schools

Grade Levels: 5 - 8 ***Room:*** 207

Strand: STEM in the Community: Thinking Outside the Classroom

E10 Teaching Anatomy with Living Cadavers (LIMIT 20)

Presented by: Frederick Andres, Owens Community College

Grade Levels: 9 - 12, College ***Room:*** 215

Strand: Teaching and Learning in SCIENCE

E11 Power Up Differentiated Instruction with INFOhio Resources

Presented by: Judith Tucker, INFOhio & NWOET

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 213

Strand: Integrating Technology in the Classroom

E12 Coffee Shop Customers-Designing and Analyzing an Observational Study

Presented by: Oxana Grinevich, Lourdes University

Grade Levels: 9 - 12 ***Room:*** 211

Strand: Teaching and Learning in MATHEMATICS

Keynote Presentation 8:30 - 9:45 am

Keynote Presentation

Kelly Croy

Kelly Croy is an inspirational speaker and artist who has been featured on CNN, USA Today, MSNBC, The Armed Forces Network, Countdown with Keith Olbermann, and more.

He has traveled all over the nation, sharing his unique and powerful chalk art performances to entertain and challenge audiences to make a difference in the lives of others. Kelly's artwork has been on display in galleries, corporate offices, universities, and meeting halls from coast to coast, his editorial cartoons have received international recognition.

Learn more about Kelly at **www.KellyCroy.com**.

Inquiry in the College Classroom: Enhancing the Undergraduate Experience

Block A: 10:00 – 10:50 am

A3 Active Learning & The Joy of Teaching Large Lecture Hall Classes

This workshop will explore ways to promote ubiquitous engagement in environments typically considered antithetical to such learning, with the goal of seeing which elements may or may not prove successful.

Presented by: Paul Cesarini, BGSU – College of Technology

Grade Level: College ***Room:*** 115

Block B: 11:00 – 11:50 am

B3 Meeting The Challenges of Beginning STEM Majors - It's All About Engagement

First year college science students at large universities transition from a high school classroom of about 20 students to a college class of hundreds, from daily direct interaction with a teacher to little or no one-on-one time with a professor, and from daily classes moving at a modest pace to three-times-per week lectures that complete a chapter in less than two weeks. So it is no surprise that a significant fraction of students who start in a STEM field in college do not complete a degree in their first major. The purpose of this talk is to discuss the role of student ENGAGEMENT in and out of the classroom. Technology has allowed us to use personal response devices for immediate feedback. Audiovisual systems permit all students to see experiments which we can then ask them to describe in writing. Mastering learning systems can use artificial intelligence to tailor online student work to individual abilities. We need to move from sage on the stage to guide on the side. The presentation will describe some of the tools we use at University of Toledo in general chemistry to achieve this goal.

Presented by: Andy Jorgensen, The University of Toledo

Grade Level: College ***Room:*** 115

Integrating Technology in the Classroom

Block A: 10:00 – 10:50 am

A6 The Learning is in the Layers: Stratalogica and TRUE 21st Century Skills

For over a hundred years, Herff Jones | Nystrom has equiped teachers with the highest quality educational resources such as maps, globes, and atlases. See how Nystrom's partnership with Google Earth can bring these resources to your classroom in a web-based, interactive, creative and collaborative environment.

Presented by: Trevor Walsh, Herff Jones | Nystrom

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 121

A7 Digital Creations for Primary Grades

Utilize a digital camera, iPod Touch, or cell phone to create unique classroom presentations for families and open house nights!

Presented by: Amy Contos, Kateri Catholic Academy

Grade Levels: PreK - 4 ***Room:*** 203

Block B: 11:00 – 11:50 am

B5 iPads, STEM, & Challenge Based Learning

Getting student investment in content can be strengthened through the use of iPads, engaging content, and challenge based learning. This session will highlight iPad apps and instructional methods to bring STEM objectives to focus while using Challenge Based Learning. Student examples will accompany lesson plans and app list.

Presented by: Leah LaCrosse, Huron City Schools

Grade Levels: 5 - 8 ***Room:*** 121

Block C: 12:50 – 1:40 pm

C4 Using PLEs (Personal Learning Environments) for Any Student

Learn what a PLE is and how it can be used to supplement or replace content in the classroom. Use technology to present material, reinforce topics, provide practice, or create a space for learning on calamity days and holidays.

Presented by: Sharon Shaffer, BGSU – College of Education

Grade Levels: 5 - 8 ***Room:*** 120

Double Sessions – Blocks C & D: 12:50 – 2:40 pm

C8 & D7 Bringing the Nano-World to Life: Computer Simulation for Everyone (LIMIT 20)

Participants will learn to use the on-line tool Molecular Workbench (http://mw.concord.org/modeler/) to design and build molecular dynamics simulations to bring the nano-scale world of atoms, ions, molecules and their complex assemblies to life for their students using physically accurate, state-of-the-art computational tools. Participants will learn how to teach the molecular basis of important chemistry and general science concepts such as temperature, pressure, ideal gas behavior, heat of vaporization, diffusion, and osmosis, using computational experimentation. This approach enables students to achieve conceptual breakthroughs that prepare them rigorously for college or higher level courses in science majors.

Presented by: Neocles Leontis, BGSU – Chemistry Department, College of Arts & Sciences

Grade Levels: 9 - 12, College ***Room:*** 207

C12 & D10 Using Technology To Boost Student Learning Of Energy Concepts (LIMIT 20)

You will be engaged in Project Based Science lessons on energy. The lessons are linked to the new K – 12 Science Standards and presented in the 5-E Learning Model format. You will learn teaching techniques that capture the essence of using technology as a tool to help your students achieve your classroom learning targets/outcomes. **Personal laptop or iPad is required.**

Presented by: Janet Struble, UT LEADERS
Stacy Maynard, UT LEADERS

Grade Levels: PreK - 4, 5 - 8 ***Room:*** 219

Block D: 1:50 – 2:40 pm

D4 The Flipped Classroom: What Is It and How Can I Use It?

This presentation will discuss the positives and negatives of the flipped classroom and techniques to create a flipped classroom will be shared. Programs and apps that help create quality flipped content will be explored as well as current online resources will be investigated. Participants will learn about flipped ideas and be able to incorporate flipped ideas into lessons.

Presented by: Dave Harms, Penta Career Center

Grade Levels: 9 - 12 ***Room:*** 120

Block E: 2:50 – 3:40 pm

E5 Integrating Technology in Academic Classes

Learn how to integrate technology into traditional classrooms. Investigate the techniques of flipping your classroom and incorporate them into your teaching. Design techniques, technology projects, and student examples will be shared.

Presented by: Dave Harms, Penta Career Center

Grade Levels: 9 - 12 ***Room:*** 120

E7 Video Creation To Reinforce Learning

It is often said that the best way to learn something is to teach it to others. In this session, we will explore how giving the assignment of creating a training video can not only teach video production skills and the utilization of mobile technology but it provides an engaging way to reinforce learning on a subject matter.

Presented by: Christian Rogers, BGSU – College of Technology

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 203

E11 Power Up Differentiated Instruction with INFOhio Resources

Need high quality resources for your differentiation tool box? Learn about the captioned videos just added to the over 2,000 videos already available in the Digital Video Collection at INFOhio. We will also help you Power Up by exploring other valuable hidden tools for differentiation found in the many INFOhio resources.

Presented by: Judith Tucker, INFOhio & NWOET

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 213

Putting Creativity to Work: Teaching STEM With Innovation

Block A: 10:00 – 10:50 am

A1 Get Focused on STEM

Are you a believer in hands-on activities? We are too. But, we're determined to make them much better by helping you and your students focus on the wealth of science, technology, engineering, and math that lives just below the surface of these brilliant physical modeling activities. Students have the ability to 1) sketch, 2) analyze, 3) simulate, 4) virtually predict outcomes, and 5) manufacture.

Presented by: Rob Smith, DEPCO, LLC

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 106

A2 Toledo Technology Academy - A Different Model for Education

Toledo Technology Academy (TTA) is a magnet school in the Toledo Public School District that has been breeding innovation since it began in 1997. TTA uses a curriculum that integrates core subjects and technical experience in ways that prepares students for college and the competitive business sector. This session, will focus on the TTA model, emphasizing the effect of themed learning and collaborative governance on education.

Presented by: Gary Thompson, Toledo Technology Academy
Joseph Choate, General Motors

Grade Levels: 9 - 12 ***Room:*** 223

Block B: 11:00 – 11:50 am

B1 It's Not All Fun and Games: The Challenge of Teaching Essential Mathematics for 3D Game Design

Most students identify themselves as either artistic/creative or analytical/scientific. Many students interested in computer game design consider themselves to be the former. Often, these students focus their academic pursuits on Art, Design, Music and Composition rather than Science and Mathematics. However, when they decide to study game development, they quickly learn that Mathematics plays an essential role. Having to learn the Mathematics necessary to program 3D graphics can be intimidating. It is a significant challenge for an instructor to present this material in a way that non-technical students can fully comprehend. This presentation explores the challenges faced by Game Design instructors as they teach Mathematics to non-technical students. It explores novel approaches to the teaching of this challenging subject and provides insights to help instructors in this and similar disciplines.

Presented by: Jerry Schnepp, BGSU – Visual Communication & Technology Education

Grade Levels: 9 - 12, College ***Room:*** 106

B14 Teaching Simple Machines, Force and Motion and a little Energy, using LEGO®

Even the least-science oriented teacher will feel confident learning how to teach simple machines, force and motion and a little energy using that wonderful manipulative-LEGO while addressing content standards in math, science and technology and promoting scientific inquiry and problem solving.

Presented by: Ivery Toussant, Jr., LEGO® Education

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 223

Block C: 12:50 – 1:40 pm

C1 Learning Through The Inquiry Cycle and Play

At the Toledo Zoo we have become committed to modeling scientific inquiry and engaging our guests scientific learning in a fun way. This presentation will use a few novel, hands-on items to walk teachers through a cycle of inquiry as we would at the Toledo Zoo. Learning to ask and answer questions in this way has been successfully applied to students kindergarten through high school. Our students find themselves engaged and enjoying these inquiry activities according to our evaluations.

Presented by: Jerran Orwig, The Toledo Zoo

Grade Levels: PreK - 4, 5 - 8, 9 - 12, College ***Room:*** 106

C5 Case Study: Strategies Modeling and Reading Together Through Integrating Science (SMARTTIS)

This presentation will share the results of one segment of a larger study – Strategies Modeling and Reading Together Through Integrating Science (SMARTTIS). The topic centers around the integration of science and reading, and teachers' beliefs, student content knowledge, and student attitudes. Curriculum reform, state and national standards, and research have argued for cross-curricular integration among different subject areas, more specifically in science and reading. Classroom teachers play a critical role in the successful implementation of reform and research-based, best practices; and their beliefs strongly influence their practice.

Presented by: Andrea Milner, Adrian College
Vanessa Morrison, Adrian College

Grade Levels: PreK - 4, 5 - 8 ***Room:*** 121

C13 Learning with LEGOs (LIMIT 20)

Let students from K - 5 explore the new Revised Science Standards through LEGOs. Activities explore all areas of science and reach multiple age groups. Students use creativity and imagination to complete learning challenges.

Presented by: Kelisa Boden, Perrysburg Schools
Kirstina Roberts, Otsego Local Schools
Robin Cangelosi, Strongsville City Schools

Grade Levels: 5 - 8 ***Room:*** 223

Block D: 1:50 – 2:40 pm

D1 Seeing STEM at Work

Implementing STEM across K - 12 can be challenging. This session will show how science, technology, engineering and mathematics has been ingrained into the nine Putnam County schools. Additionally, participants will take home hands-on student activities that help to introduce STEM in the early elementary grades.

Presented by: Beth Hench, Putnam County Educational Service Center

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 106

D9 It's About Discovery: An Innovative Curriculum with a Focus on Energy Sustainability

Explore Energy! Build your own hydrogen fuel-cell! Peer interaction across states to solve complex energy issues! Learn about these and other "It's About Discovery" activities.

Presented by: Dean Cristol, The Ohio State University
Brittany Collier-Gibson, The Ohio State University
David Pepple, Wapakoneta High School

Grade Levels: 9 - 12, College ***Room:*** 215

Block E: 2:50 – 3:40 pm

E1 What exactly IS Project-Based Learning and why should I care?

You've probably heard about Project-Based Learning (PBL). You may have heard about Project-Based Science (PBS). You probably have questions: Is it just the next fad in education? How hard is it to implement? Does it work at every grade level? Come learn just what PBL is and why it makes sense in today's world. We'll explore how it makes implementing the Common Core curriculum and the new, upcoming State Science Standards easy and (relatively) painless. You'll leave with ideas you can take back to your classroom (Kindergarten through college!) and resources to help you put it all together and work for you.

Presented by: Susan Bastian, St. Joseph School

Grade Levels: PreK - 4, 5 - 8, 9 - 12, College ***Room:*** 106

E2 Literacy Design Collaborative/College Ready Tools/An Introduction

Literacy Design Collaborative College Ready Tools (LDC - CRT) are being adopted in Perkins Local Schools to provide a structured approach in implementing the new literacy standards. This presentation will introduce CRT as a system of learning for all of the core academic disciplines including english language arts, social sciences, natural sciences, and mathematics. Teachers from each of the core disciplines will provide an overview of how they are using CRT to focus on development of literacy skills within each of these primary domains with the aim of improving student mastery of the common core standards.

Presented by: Paul Daugherty, Perkins Local Schools
Hope Ann Wallace, Perkins Local Schools
Christopher Walton, Perkins Local Schools
Jeff Harbal, Perkins Local Schools
Michael Schultz, Perkins Local Schools

Grade Levels: 9 - 12 ***Room:*** 111

E4 COLLABORATIVE ACTION RESEARCH: Testing & Then Reporting the Visualization and Processing Speed of NWO Symposium presenters, exhibitors, and attendees

This will be a Collaborative Action Research project where we will be assigned to the same room for the entire day including lunch. We request that conference presenters, exhibitors, and attendees voluntarily come to our assigned room at any time during the day. Using an Apple iPad, you will be tested on for your 3-D visualization ability and cognitive processing speed. Finishing both tests will take approximately 15 minutes. Then during the last session of the day, we will present our findings. Volunteer for the sake of STEM. Volunteer for the opportunity to munch upon chocolate chip cookies baked by the researchers.

Presented by: Richard Oldrieve, Oldrieve Research & Consulting
Cynthia Bertelsen, BGSU – School of Teaching & Learning

Grade Levels: PreK - 4, 5 - 8, 9 - 12, College ***Room:*** 119

STEM in the Community: Thinking Outside the Classroom

Block A: 10:00 – 10:50 am

A5 Frog Watch USA: Leap into Citizen Science

FrogWatch USA is the Association of Zoos and Aquarium's flagship citizen science program that allows individuals and families to learn about the wetlands in their communities and help conserve amphibians by reporting the calls of local frogs and toads. For over ten years, volunteers have been trained to enter their FrogWatch USA information and ongoing analyses of these data have been used to help develop practical strategies for the conservation of these important species. BGSU is establishing a regional chapter and this presentation will introduce participants to the program and how to incorporate it into their classrooms.

Presented by: Matthew Partin, BGSU – Department of Biological Sciences
Eileen Underwood, BGSU – Department of Biological Sciences

Grade Levels: 5 - 8, 9 - 12, College, Community Partners ***Room:*** 120

Block B: 11:00 – 11:50 am

B7 Toledo Zoo's Learning through Play

Explore with Zoo staff what the Zoo offeres for teachers to make learning about animals a wild adventure. The primary focus of this session will be on learning about animals through play!

Presented by: Josh Minor, The Toledo Zoo
Nicole Syrek, The Toledo Zoo

Grade Levels: PreK - 4 ***Room:*** 205

Double Sessions – Blocks C & D: 12:50 – 2:40 pm

C2 & D2 Great Science on the Great Lakes: OSU's Stone Laboratory

Looking for ways to increase your science content knowledge while acquiring new teaching strategies? Interested in professional development that is active, hands-on, and easily integrated into your classroom? Come see what OSU's Stone Laboratory has to offer for educators, as well as students (grades 5 - 12). Get information on the newest professional development opportunities, including week-long field-based classes for teachers or students, as well as exemplary standards-based curricular materials. A secondary science teacher will share strategies for integrating Great Lakes science into existing middle and high school curricula and participants will receive information on opportunities provided by Ohio Sea Grant/Stone Lab, and leave with a lesson ready to use in their classroom on Monday.

Presented by: Christopher Winslow, OSU Stone Laboratory
Sue Bixler, OSU Stone Laboratory

Grade Levels: 5 - 8, 9 - 12, Informal educators ***Room:*** 111

Block C: 12:50 – 1:40 pm

C7 STEMM Summer Camp hosted by UT StACS

An opportunity to expose educators to a local summer camp for high school students. Learn about the core concepts of camp and sample curriculum that will encourage students to seek out the program, gain an understanding of the cross-linking of laboratory practices and industrial application and strengthen STEMM knowledge outside of the classroom.

Presented by: Amber Hall, UT Student American, Chemical Society
Edith Kippenhan, UT Student American, Chemical Society
Brenda Snyder, UT Student American, Chemical Society

Grade Levels: 9 - 12 ***Room:*** 205

Block D: 1:50 – 2:40 pm

D11 Launching Excitement in STEM Education at the Challenger Learning Center of Lake Erie West

Learn how the Challenger Learning Center of Lake Erie West, sponsored by the Educational Service Center of Lake Erie West will launch students into real-world experiences that will build necessary Career and College Readiness skills required of 21st century learners, specifically in STEM Education.

Presented by: Reed Steele, Challenger Learning Center

Grade Levels: PreK - 4, 5 - 8, 9 - 12 ***Room:*** 223

Block E: 2:50 – 3:40 pm

E8 Inquiry Based Learning - an Avatar's Perspective

The Air Force Research Laboratory established a research environment 6 years ago called the Discovery Lab that operates at the intersection of Research and STEM. Through it's Year at the Edge student internship program, over a 100 students a year from the region and from across the country are brought to the AFRL Discovery Lab to participate in hands-on research that produces technologies that meet important national needs while also serving to teach science and math principles . These students are primarily 1st and 2nd year undergraduates and high school students working together on mentored student research teams. A key part of the programs success is the use of virtual reality to establish a Virtual (reality) Discovery Center that has expanded our outreach efforts to a goal of 1,000 students. This presentation describes how virtual reality based on the free, open source Open Simulator has allowed students to engage in research as avatars investigating robotics, smart phone app development, virtual reality technology, medical / health care and nanomaterials to name a few. Lessons learned will be presented on what has worked and examples given of successes working with high school and even middle school students and their teachers via AFRL's Virtual Reality Academy (VRA).

Presented by: Robert Williams, Air Force Research Laboratory

Grade Levels: 9 - 12, College ***Room:*** 205

E9 Twitter, Skype, Edmodo: Connecting our Learners (LIMIT 20)

Connecting our learners to other learners and professionals may be one of the most important ways to create authentic experiences. This session will highlight the use of Twitter, Edmodo, and Skype to create and extend these connections. Sample projects to connect with will be highlighted. This time will be used to create class/teacher accounts, explore the programs, and initiate connections.

Presented by: Leah LaCrosse, Huron City Schools

Grade Levels: 5 - 8 ***Room:*** 207

Teaching and Learning in ENGINEERING

Double Sessions – Blocks A & B: 10:00 – 11:50 am

A4 & B4 Playing with Parachutes

Designing and building parachutes is a great way to get students involved in engineering and excited about measurement. Engage students with hands-on activities and a little bit of competition. Adapt the activity for students in elementary up through high school.

Presented by: Alayne Schrock, Ada Schools

Grade Levels: 5 – 8 ***Room:*** 117

Double Sessions – Blocks C & D: 12:50 – 2:40 pm

C3 & D3 Using Technology To Boost Student Learning Of Energy Concepts (LIMIT 20)

The Tsunami Model Eliciting Activity (MEA) is a hands-on, interdisciplinary curriculum that utilizes active learning. Students develop a mathematical model specifying emergency relief after a natural disaster. Participants in this workshop will quickly go through the MEA and discover how it can be implemented in any classroom. Participants will receive the entire curriculum online as well as a series of papers demonstrating its success in 6th and 8th grade classrooms. The Tsunami MEA was awarded Best Middle School Curriculum in 2009 as a way to introduce engineering to a classroom as a profession that helps society. Best of all, it's free and available online!

Presented by: Ken Reid, Ohio Northern University
Christine Floyd, Eastwood Middle School

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 117

Teaching and Learning in MATHEMATICS

Block A: 10:00 – 10:50 am

A10 Examining Model Curriculum in Mathematics: 5th Grade [(CO)^{2}RES Secondary]

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 5 ***Room:*** 211

A11 Examining Model Curriculum in Mathematics: 7th Grade, 8th Grade, and Special Education

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Levels: 7 - 8, Special Education ***Room:*** 213

A12 Examining Model Curriculum in Mathematics: Kindergarten

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: Kindergarten ***Room:*** 215

A13 Examining Model Curriculum in Mathematics: 3rd Grade

The (CO)^{2}RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: (CO)^{2}RES Teacher Participants

Grade Level: 3 ***Room:*** 217

Block B: 11:00 – 11:50 am

B9 Examining Model Curriculum in Mathematics: 6th Grade

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 6 ***Room:*** 211

B10 Examining Model Curriculum in Mathematics: 9th – 12th Grade

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Levels: 9 - 12 ***Room:*** 213

B11 Examining Model Curriculum in Mathematics: 1st Grade

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 1 ***Room:*** 215

B12 Examining Model Curriculum in Mathematics: 4th Grade

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 4 ***Room:*** 217

Block C: 12:50 – 1:40 pm

C9 Cancellation Is a Property of Groups, Not of Fractions

Secondary teachers, most of whom have taken a course in Abstract Algebra, should know this property. Unfortunately, many teachers employ a mathematically, nonsensical operation to reduce fraction, and have given it the name "Cancellation." This session will explain: a) the mathematical way to reduce fractions, b) the dangers inherent in the method widely employed in classrooms, and c) oh yes, describe the mathematical property of cancellation.

Presented by: Donald Czarcinski, Lourdes University

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 211

C10 Examining Model Curriculum in Mathematics: 2nd Grade

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 2 ***Room:*** 215

C11 Examining Model Curriculum in Mathematics: 5th Grade [$(CO)^2$RES Elementary]

The $(CO)^2$RES sessions are led by grade level teams of teachers who participated in the program. These teachers designed and implemented Common Core aligned mathematics lessons. Each session will target specific grade level content from the Common Core State Standards (CCSS) for grades K - 10. Presenters will share their experiences of learning about the CCSS and challenges associated with teaching new standards.

Presented by: $(CO)^2$RES Teacher Participants

Grade Level: 5 ***Room:*** 217

Block D: 1:50 – 2:40 pm

D8 An Exploratory Approach to Algebra

We have taken some key topics in algebra, such as functions, polynomials, asymptotes, exponentials and logarithms, and written ready-to-use exploratory activities that will improve your students' understanding. During the session, we will share these activities and our experiences in using them.

Presented by: Sandra Zirkes, BGSU – Department of Mathematics and Statistics
Lindsey Haubert, BGSU – Department of Mathematics and Statistics

Grade Levels: 9 - 12 ***Room:*** 211

Block E: 2:50 – 3:40 pm

E12 Coffee Shop Customers-Designing and Analyzing an Observational Study

If you observe more female customers than male customers in your next visit to coffee shop, does this convince you that the majority exists in the general coffee shop population? This presentation shows how students can move beyond description of data to making inferential conclusions on the basis of their data.

Presented by: Oxana Grinevich, Lourdes University

Grade Levels: 9 - 12 ***Room:*** 211

The "Common Core for Reasoning and Sense Making" [$(CO)^2$RES Elementary and $(CO)^2$RES Secondary] programs are funded by the Ohio Board of Regents. The purpose of these programs is to familiarize teachers with the Common Core Standards and to support their growth in two content domains. Teachers participating in the program deeply explored researched based classroom practices, which led to the engagement of students in the Standards for Mathematical Practice.

Teaching and Learning in SCIENCE

Block A: 10:00 – 10:50 am

A8 Halloween at Hogwarts

This media-based presentation integrates Chemistry through a series of demonstrations into an entertaining and educational experience. Access to all video clips and online files of how to set up and execute demonstrations will be provided. Throughout the presentation the instructor will be including their own personal Halloween Story - Hogwarts style!

Presented by: Kim Cortez, Arlington High School
Molly Niese, Arlington High School

Grade Levels: 9 - 12 ***Room:*** 205

A9 Implementing the New Science Standards in a Safe Classroom Environment (Limit 20)

Ohio Total Science Safety System (OTSSS) is a comprehensive safety tool designed by Jakel, Inc. and SECO to aid educators in following safety regulations in Ohio science classrooms. Each Ohio public or private middle/junior high and high school can receive one CD. Learn how you can keep your science classroom safe and pick up a CD for your school.

Presented by: Janet Struble, NSTA/Science Education Council of Ohio (SECO)
Mikell Lynne Hedley, Science Education Council of Ohio (SECO)

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 207

Double Sessions – Blocks A & B: 10:00 – 11:50 am

A14 & B13 Physical Science Modeling Instruction

Have you heard of Modeling Instruction? Come see why many teachers are getting excited about this new way of presenting curriculum. Modeling targets misconceptions and attempts to correct them by having students conduct self-directed labs, participate in whiteboard sessions, and develop models.

Presented by: Nate Ash, Perrysburg High School
Blythe Tipping, Sylvania Southview High School

Grade Levels: 9 - 12 ***Room:*** 219

Block B: 11:00 – 11:50 am

B2 Adventures in Science: Building a love for science that lasts past science class! (LIMIT 20)

Hands-on, minds-on activities that help students come to class every day ready to learn. Experiences that help students continue learning when science class is over. Geared toward elementary classrooms.

Presented by: Heather Janes, Lake Local Schools

Grade Levels: 3 - 5 ***Room:*** 120

B6 I Really Did Study

"I really did study." How many times have teachers heard this statement from students after a poor performance on a test? Student perception of their mastery of content does not always match reality. Explore the differences between these students and more successful students, and how teachers can move these novice learners toward becoming experts.

Presented by: Debra Bercher, Lourdes University

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** 203

B8 Complexity Made Simple: Modeling Dynamic Systems To Foster Creative, Critical, and Quantitative Thinking

Technology can be more than bells and whistles as an instructional aid. System Dynamics software allows students to construct quantitative models of simple and complex interactions and explore how manipulating different variables affects the system's behavior over time. Students can have a concrete, creative, and interactive experience investigating complex systems such as climate change, sustainable farming, and homeostasis. The main software covered in the session will be STELLA, isee Systems.

Presented by: Jon Darkow, Seneca East High School

Grade Levels: 5 - 8, 9 - 12, College ***Room:*** 207

Block C: 12:50 – 1:40 pm

C6 Using Fossils to Engage Students in Science Learning

Fossils provide a fascinating window into Earth's ancient past and are a great way to excite kids about scientific discovery. We'll discuss hands-on activities using fossils that target general science skills and specific content standards in life and earth sciences. Every participant will receive lesson plans and resource guides.

Presented by: Peg Yacobucci, BGSU – Geology Department and Paleontological Society

Grade Levels: PreK - 4, 5 - 8 ***Room:*** 203

Double Sessions – Blocks C & D: 12:50 – 2:40 pm

C14 & D12 Energy Education 101

Energize your classroom with teaching methods and activities, aligned to the new Ohio academic standards, that help your students understand the science of energy. Information will include renewable and nonrenewable resources, transformation of energy, energy efficiency and electricity. Teachers will receive grade appropriate materials and information on programs available to northern Ohio educators.

Presented by: Debby Yerkes, Ohio Energy Project

Grade Levels: 5 – 8, 9 - 12 ***Room:*** 213

Block D: 1:50 – 2:40 pm

D5 Animals in the Classroom

This session will showcase a BGSU Graduate Students' master's thesis research results that show how live animals and animal videos increased student engagement. Teachers will be provided with resources to help integrate animals in the science classroom.

Presented by: Elizabeth Overmier, Electronic Classroom of Tomorrow

Grade Levels: 9 - 12 ***Room:*** 121

D6 Trip, Trap, Trip, Trap. . . .Who Is That Under the Bridge?

Reading fairy tales and other children's literature can present many opportunities to interpret nature. While the stories are often familiar they don't always accurately explain what is outside our door. We will read about the Three Billy Goat Gruffs and the troll, and then we will learn about who really is under our bridge at Swan Creek Park. Several common stories will be shared and maybe a few that you are not yet familiar with as well.

Presented by: Karen Mitchell, Metroparks of the Toledo Area
Heather Norris, Metroparks of the Toledo Area

Grade Levels: PreK - 4 ***Room:*** 205

Block E: 2:50 – 3:40 pm

E3 Project Wild: Growing Up Wild (LIMIT 20)

Growing Up Wild is an early childhood education program that builds on children's sense of wonder about nature and invites them to explore wildlife and the world around them through music & movement, outdoor activities, art projects, literature, math and home connections.

Presented by: Gloria Gajewicz, Project Wild
Kristie Reighard, Project Wild

Grade Levels: PreK - 4 ***Room:*** 117

E6 Hands-On Optics and Biology

The instructors will show how students can run their own "experiment" in the classroom using just a hand lens, a ruler, and some sturdy samples. They will determine the focal point of the lens. The students will do an exercise to describe the visual appearance of the samples, then their appearance when magnified.

Presented by: Carol Heckman, BGSU – Department of Biological Sciences
Chelsea Zhang, BGSU
Francis Bugyei, BGSU

Grade Levels: 5 - 8, 9 - 12 ***Room:*** 121

E10 Teaching Anatomy with Living Cadavers (LIMIT 20)

Human and animal cadavers have long been used to teach anatomy. Although human cadavers are not practical for most public schools and many college instructors, living cadavers are readily available. See how you can enhance your teaching with these resources.

Presented by: Frederick Andres, Owens Community College

Grade Levels: 9 - 12, College ***Room:*** 215

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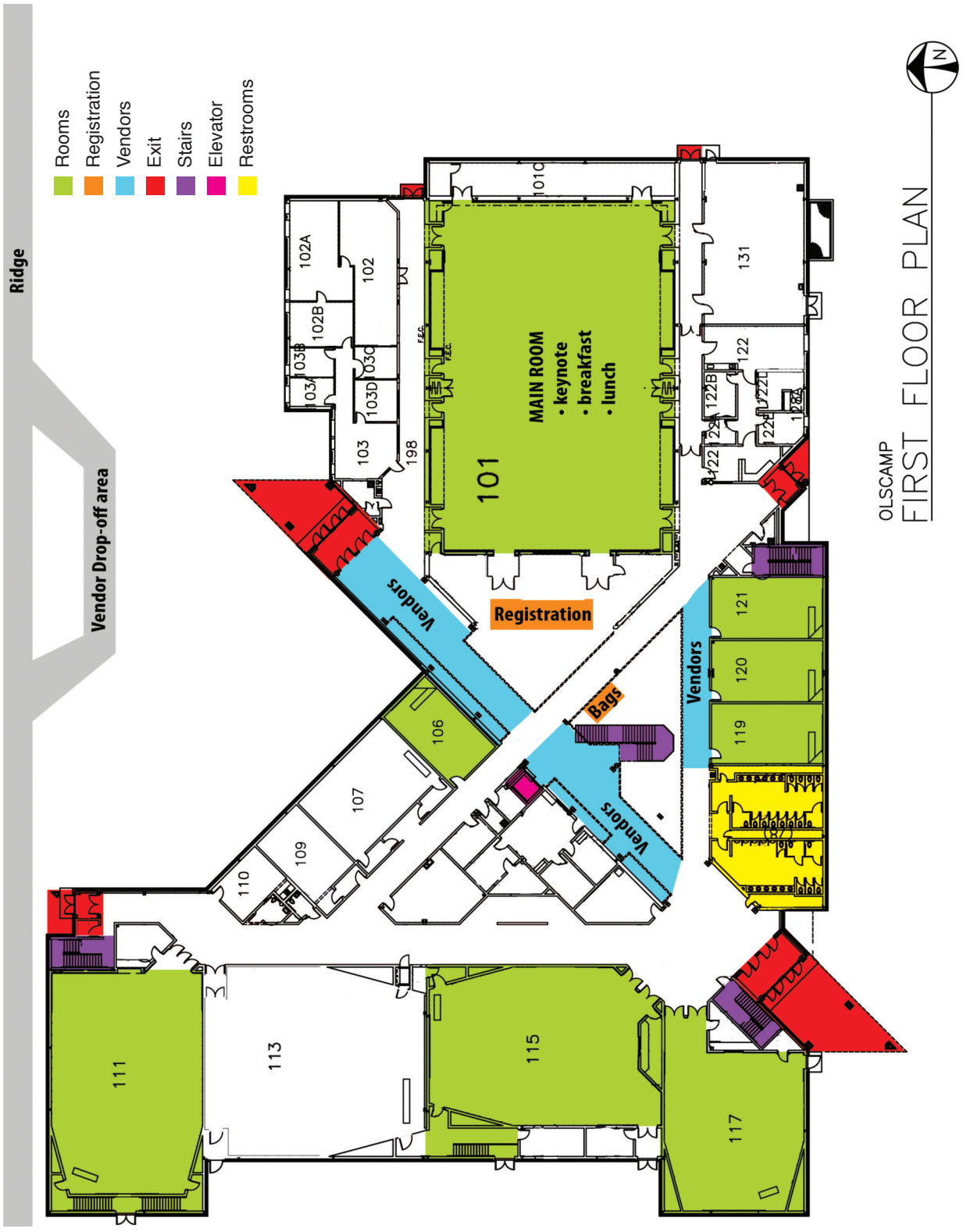
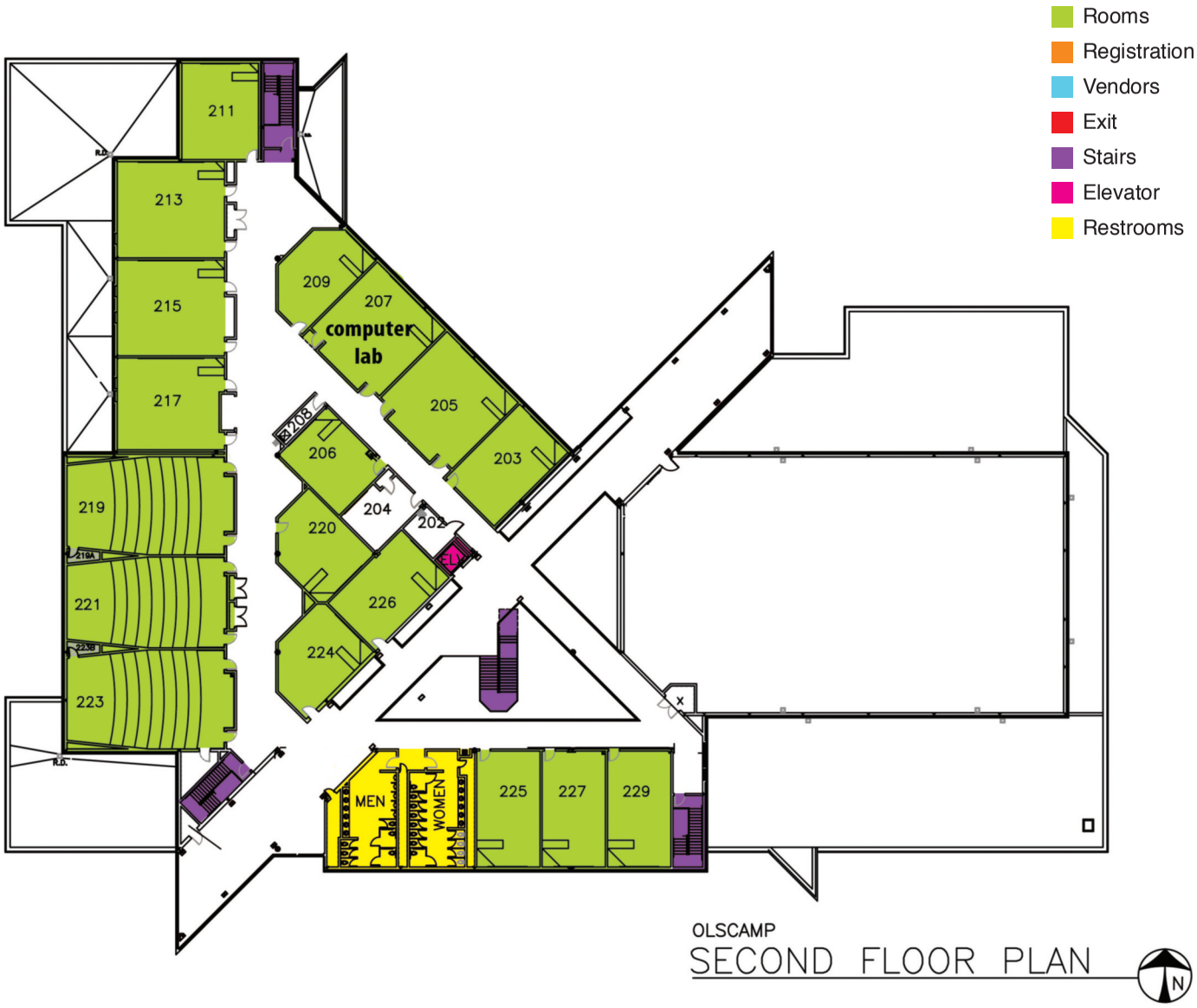
Olscamp Hall Maps




Rooms
Registration
Vendors
Exit
Stairs
Elevator
Restrooms
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computer lab
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SECOND FLOOR PLAN
N

Session Overview

Welcome & Keynote: 8:30-9:45 AM	Keynote Address: Kelly Croy (Room 101)							
Room #	106 (38 desks)	111 (294 desks)	115 (281 desks)	117 (135 Tables)	119 (45 desks)	120 (45 desks)	121 (45 desks)	203 (45 desks)
Block A: 10:00-10:50 AM	Putting Creativity to Work A1		Inquiry in the College Classroom A3	A4 Engineering		STEM in the Community A5	Integrating Technology A6	Integrating Technology A7
Block B: 11:00-11:50 AM	Putting Creativity to Work B1		Inquiry in the College Classroom B3	B4		Science B2	Integrating Technology B5	Science B6
Lunch: 11:50 AM - 12:40 PM								
Block C: 12:50-1:40 PM	Putting Creativity to Work C1	C2 STEM in the Community		C3 Engineering		Integrating Technology C4	Putting Creativity to Work C5	Science C6
Block D: 1:50-2:40 PM	Putting Creativity to Work D1	D2		D3		Integrating Technology D4	Science D5	
Block E: 2:50-3:40 PM	Putting Creativity to Work E1	Putting Creativity to Work E2		Science E3	Putting Creativity to Work E4	Integrating Technology E5	Science E6	Integrating Technology E7

Welcome & Keynote: 8:30-9:45 AM	Keynote Address: Kelly Croy (Room 101)							
Room #	205 (60 desks)	207 (CPU Lab)	211 (45 desks)	213 (60 desks)	215 (60 desks)	217 (60 desks)	219 (82 Tables)	223 (82 Tables)
Block A: 10:00-10:50 AM	Science A8	Science A9	Mathematics A10	Mathematics A11	Mathematics A12	Mathematics A13	A14 Science	Putting Creativity to Work A2
Block B: 11:00-11:50 AM	STEM in the Community B7	Science B8	Mathematics B9	Mathematics B10	Mathematics B11	Mathematics B12	B13	Putting Creativity to Work B14
Lunch: 11:50 AM - 12:40 PM								
Block C: 12:50-1:40 PM	STEM in the Community C7	C8 Integrating Technology	Mathematics C9	C14 Science	Mathematics C10	Mathematics C11	C12 Integrating Technology	Putting Creativity to Work C13
Block D: 1:50-2:40 PM	Science D6	D7	Mathematics D8	D12	Putting Creativity to Work D9		D10	STEM in the Community D11
Block E: 2:50-3:40 PM	STEM in the Community E8	STEM in the Community E9	Mathematics E12	Integrating Technology E11	Science E10			

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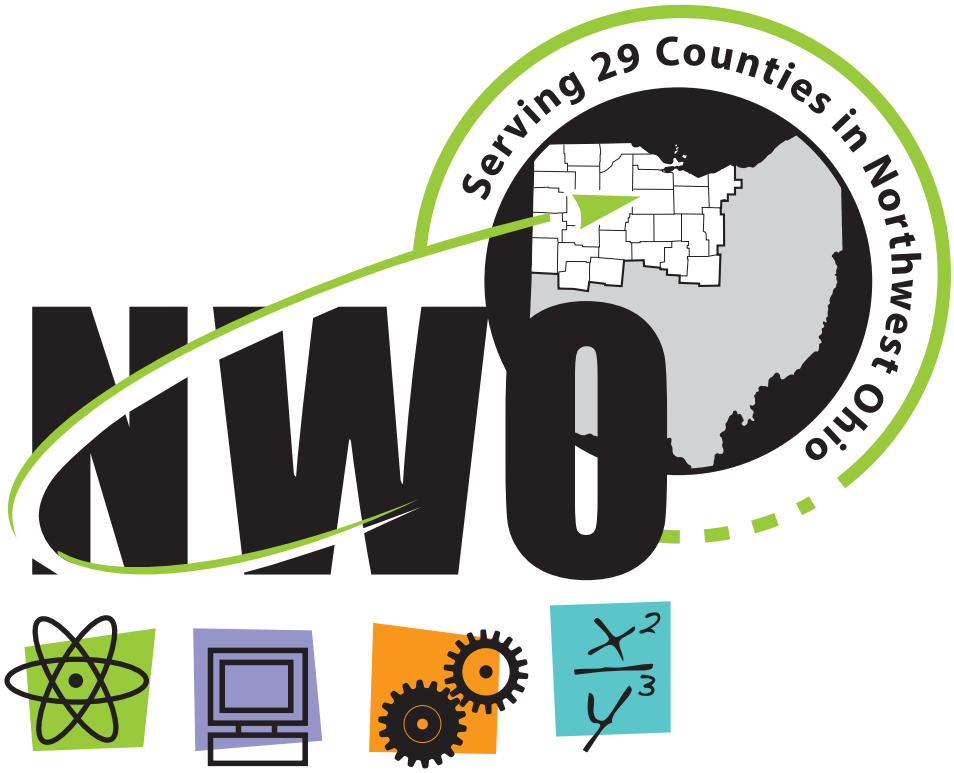

Northwest Ohio Center for Excellence in STEM Education

The 2012 NWO Symposium on Science, Technology, Engineering, and Mathematics Teaching is sponsored by the Northwest Ohio Center for Excellence in STEM Education and its partners around Northwest Ohio.

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