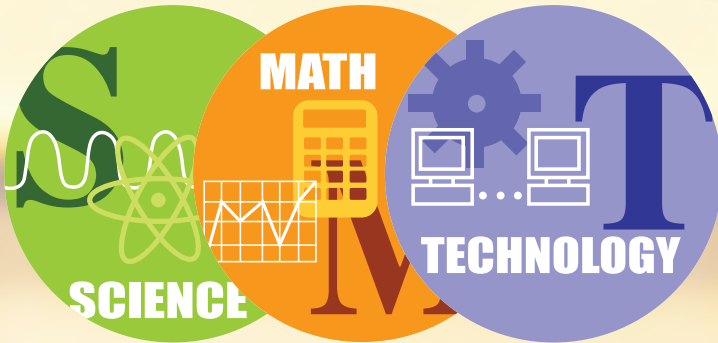


**2009 NWO Symposium**  
**Saturday, November 7, 2009**  
**at Penta Career Center**



Northwest Ohio Symposium on Science,  
Mathematics, and Technology Teaching



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# Door Prize Raffle...an opportunity to win great resources for your classroom!

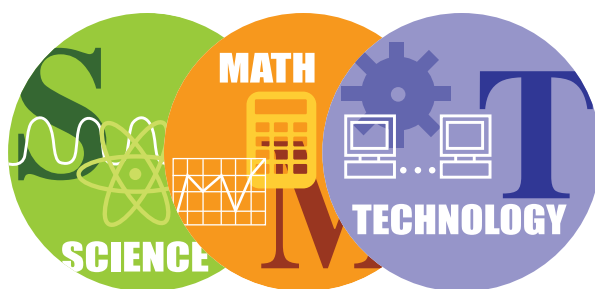
*This year's raffle will take place after the keynote in the auditorium.*

---

## EVALUATION of Symposium

Please complete the online evaluation for the 2009 Symposium. All who complete the survey will be entered into a drawing for a \$50 Amazon gift card and an NWO fleece jacket, or one of the many other items donated by today's vendors!

Please go to the following website to complete the online evaluation:  
**<http://nwohiosymposium.org>**



Northwest Ohio Symposium on Science,  
Mathematics, and Technology Teaching

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# Welcome

We are delighted to once again welcome you to the 2009 Northwest Ohio Symposium on Science, Mathematics, and Technology Teaching. The symposium is sponsored by the Northwest Ohio Center of Excellence in Science and Mathematics 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 500 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. We are expecting even greater numbers this year and indeed have more than 70 presentations. 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 are very grateful to Penta Career Center for providing the physical facilities for this year's Symposium. We admire their new state-of-the-art building and the wonderful work that they are doing and we look forward to strengthening our partnership with them in advancing STEM education throughout the region. We invite you to pay special attention to their capabilities and programs while you are here.

We hope that you find the 2009 NWO Symposium on Science, Mathematics, and Technology Teaching to be an even more beneficial experience than last year. So far we have succeeded in meeting the fiscal challenges of the current economic situation. While we have been able to offer the Symposium at no cost to participants until now, due to changes in our funding this may not be possible in the future. We hope that you will be able to continue to participate and support us as we adapt to the changing financial climate. 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. Emilio Duran  
COSMOS, BGSU  
NWO Symposium Director

Dr. Bob Midden  
COSMOS, BGSU  
NWO Director

Ms. Amy Boros  
Perrysburg City Schools  
NWO Symposium Coordinator



# *Global Climate Change: What Is It? How Will It Affect Us? Can We Reduce the Impact By Our Actions?*

Climate change is a very intense topic, particularly given the fact that legislation on the problem is now pending in Congress. Background information about the phenomenon and methods that have been used to characterize these changes will be presented. The human dimension of the problem will be emphasized. The possible consequences of various scenarios will be explored. We will then consider solutions to the problem characterized as mitigation and adaptation strategies. Participants will be invited to present their suggestions and discuss the possible response of the general public to such ideas.

## **Dr. Andy Jorgensen**

Associate Professor of Chemistry & Director of General Chemistry  
University of Toledo  
andy.jorgensen@utoledo.edu



Dr. Jorgensen recently completed a sabbatical leave as Senior Fellow at the National Council for Science and the Environment (NCSE). His primary work on this leave was the development of climate change curricular materials in collaboration with other faculty from NCSE's Council of Environmental Deans and Directors. At Toledo he directs the introductory chemistry program and works on innovation educational techniques. He previously served as an assistant vice president for academic affairs at the university.

He earned a PhD in Physical Chemistry from the University of Illinois at Chicago and a BS in Chemistry from Quincy University. He completed a postdoctoral appointment in chemical education at the University of Illinois at Urbana-Champaign. He has conducted research in the area of the environmental impact of synthetic fuels while working at Argonne National Laboratory. He is a member of the American Chemical Society's Committee on Education and their Committee on Community Activities. He has been awarded a University of Toledo Outstanding Teaching Award and was twice appointed as a Master Teacher in the College of Arts and Sciences.

His present work on climate change education is supported by NASA and NSF.

# *Table of Contents*

Conference Agenda .....	4
Conference at a Glance .....	5-14
Presentations .....	15-39
Presenter Listing .....	40-41
Vendor Listing .....	42-43
Penta Career Center Maps .....	44-45
Acknowledgements .....	46
Raffle Donations .....	47
Notes .....	48
Community Sponsors .....	49

# Conference Agenda

- 7:45 – 8:30 ..... Registration and Breakfast
- 8:35 ..... Welcome in Auditorium
- 8:45 – 9:15 ..... Keynote Speaker: Dr. Andrew Jorgensen in Auditorium
- 9:30 – 10:20 ..... Session A
- 10:30 – 11:20 ..... Session B
- 11:30 – 12:20 ..... Session C
- 12:30 – 1:20 ..... Lunch
- 1:30 – 2:20 ..... Session D
- 2:30 – 3:20 ..... Session E
- 3:20 – 4:00 ..... Vendor Area Open

*The limit for all rooms, except the Auditorium and 1106, is 30 people, unless specified in the program.*

**Vendors open from 7:45 AM – 4:00 PM**

*Lunch catered by Tony Packo's*



# Conference at a Glance

## Session A (9:30 am - 10:20 am)

- |     |  |                   |
|-----|--|-------------------|
| A1  | <p><b>“Houston, this is Discovery. We are beginning our tasks.” Challenger Learning Center Micro-nauts Program</b></p> <p><b>Presented By:</b> Reed Steele, Challenger Learning Center of Lucas County<br/>Lynnette Pewett, Challenger Learning Center of Lucas County</p> | <b>Room: 1106</b> |
| A2  | <p><b>Collaboration Beyond the Classroom through Wikis</b></p> <p><b>Presented By:</b> Terry Herman, Bowling Green State University<br/>Larry Hatch, Bowling Green State University</p>  | <b>Room: 3123</b> |
| A3  | <p><b>Web 2.0 for Teachers</b></p> <p><b>Presented By:</b> Lan Li, Bowling Green State University</p>  | <b>Room: 3100</b> |
| A4  | <p><b>Reptiles in the Classroom</b> Repeated in Session B4</p> <p><b>Presented By:</b> Eileen Underwood, Bowling Green State University</p>  | <b>Room: 2100</b> |
| A5  | <p><b>Elementary GLOBE: Hands-On Environmental Education Program</b><br/>Repeated in Session B5</p> <p><b>Presented By:</b> Jodi Haney, Bowling Green State University<br/>Audra Wiles, Bowling Green State University</p>   | <b>Room: 2103</b> |
| A6  | <p><b>Jazzin’ Up General College Chemistry</b></p> <p><b>Presented By:</b> Elizabeth Wise, Lourdes College</p>   | <b>Room: 2105</b> |
| A7  | <p><b>Quantitative Biology: Data Collection and Modeling</b></p> <p><b>Presented By:</b> Jon Darkow, Seneca East High School</p>   | <b>Room: 2107</b> |
| A8  | <p><b>The Achievement Gap</b></p> <p><b>Presented By:</b> Raymond Heitger, Bowling Green State University</p>  | <b>Room: 2109</b> |
| A9  | <p><b>The Mathematical Arts</b></p> <p><b>Presented By:</b> David Meel, Bowling Green State University</p>   | <b>Room: 2110</b> |
| A10 | <p><b>Watching Your Students’ Knowledge Blossom</b> Repeated in Session B10</p> <p><b>Presented By:</b> Janet Struble, The University of Toledo</p>  | <b>Room: 2111</b> |
| A11 | <p><b>Rain Gardens: Nature’s Way of Clearing the Storm</b></p> <p><b>Presented By:</b> Marilyn DuFour, Rain Garden Initiative of Toledo<br/>Jamie Kochensparger, Lucas Soil &amp; Water Conservation District</p>  | <b>Room: 2113</b> |

## Conference at a Glance - cont.

- A12 **Imagination Station Teacher Resources**  
**Presented By:** Sloan Eberly, Imagination Station **Room: 2115**
- A13 **Project pi r<sup>2</sup> - Teaching Ohio Native Plant and Animal Species – Part 1 of 2**  
**(Limited to pi r<sup>2</sup> participants only)**  
**Presented By:** Heather Norris, Toledo Area Metroparks **Room: 2117**
- A14 **Preschool Science and Pre-service Teachers - What's the Connection?**  
**NWO TEAMS Presentation (open to all)**  
**Presented By:** Cynthia Baum, BGSU Child Development Center  
 Susan Peet, Bowling Green State University **Room: 2118**
- A15 **Addressing Your Students' Science Misconceptions: Breaking Through the Barriers to Student Learning - NWO TEAMS Presentation (open to all)**  
**Presented By:** Jacob Burgoon, Bowling Green State University  
 Michelle Leow Klinger, Bowling Green State University **Room: 2119**

### VENDOR SESSIONS

- A16 **GEMS: Eggs, Eggs, Everywhere**  
**Presented By:** Jack Ashton, Carolina Biological **Room: 2121**
- A17 **Amplify Your Genetics Teaching Skills with Carolina's New Inquiries in Science™ Biology Units Continued in Session B17**  
**Presented By:** Carolina Biological Teaching Partner **Room: 2122**
- A18 **Using Delta Science Module Lessons to Promote Genuine Learning**  
**Presented By:** Scott Hudson, Delta Education **Room: 2123**



## Conference at a Glance - cont.

### Session B (10:30 am - 11:20 am)

- B1 **Top 10 Tools for Teachers**  
**Presented By:** Carrie Rathsack, Rossford Schools **Room: 1106**
- B2 **Google Earth and Beyond - Project USE-IT Session Continued in Session C3 (Limited to USE-IT participants only)**  
**Presented By:** Charlene Patten, WGTE Educational Resource Center **Room: 3123**  
 Renee deValpine, WGTE Educational Resource Center
- B3 **Computational Science – What’s It All About? Continued in Session C4**  
**Presented By:** James Zubricky, The University of Toledo **Room: 3105**  
 James Perry, Owens Community College  
 Jean Zorko, Stark State College of Technology  
 Steven Gordon, Professor, The Ohio State University
- B4 **Reptiles in the Classroom Repeated in Session A4**  
**Presented By:** Eileen Underwood, Bowling Green State University **Room: 2100**
- B5 **Elementary GLOBE: Hands-On Environmental Education Program Repeated in Session A5**  
**Presented By:** Jodi Haney, Bowling Green State University **Room: 2103**  
 Audra Wiles, Bowling Green State University
- B6 **I Really Do Study Repeated in Session C7**  
**Presented By:** Debra Bercher, Lourdes College **Room: 2105**
- B7 **Inherent Differentiated Instruction in Long Term Project Learning**  
**Presented By:** Amy Biggs, Mount Vernon Nazarene University **Room: 2107**  
 Zach Miller, Mount Vernon Nazarene University  
 Dawn Davis, Mount Vernon Nazarene University  
 Heather Miller Porter, Mount Vernon Nazarene University
- B8 **Crazy Bones and More!**  
**Presented By:** Joe Sarnes, Perrysburg Schools **Room: 2109**
- B9 **Introducing Elementary Students to the Power of Observation in the Inquiry Science Classroom - NWO TEAMS Presentation (open to all)**  
**Presented By:** Robyne Kramp, Bowling Green City Schools **Room: 2110**
- B10 **Watching Your Students’ Knowledge Blossom Repeated in Session A10**  
**Presented By:** Janet Struble, The University of Toledo **Room: 2111**

## Conference at a Glance - cont.

- B11 **Energy on the Move!**  
**Presented By:** Rini Ng, Timberstone Junior High School **Room: 2113**  
 Adriana Noritz, 7th Grade Student; Naveen Rehman, 7th Grade Student  
 Alli Clausius, 6th Grade Student; Bhakti Dixit, 6th Grade Student  
 Katie Hsieh, 6th Grade Student; Mickey Krueger, 6th Grade Student  
 Jacquelyne Miksanek, 6th Grade Student; Maheen Nadeem, 6th Grade Student  
 Emily Westphal, 6th Grade Student
- B12 **Introducing Educaching – A GPS Based Curriculum and Lessons for Teachers**  
**Presented By:** Bob Rumschlag, SDG Creations, Ltd **Room: 2115**  
 Mike Bilik, SDG Creations, Ltd
- B13 **Project pi r<sup>2</sup> - Profiling Plants and Animals - Part 2 of 2**  
**(Limited to pi r<sup>2</sup> participants only)**  
**Presented By:** Diane Thurber, Toledo Botanical Garden **Room: 2117**  
 Jeanine Roberts, Toledo Botanical Garden
- B14 **Great Science on the Great Lakes Repeated in Session C15**  
**Presented By:** Lyndsey Manzo, Ohio Sea Grant **Room: 2118**
- B15 **Boost Your Confidence as an Educator and Become a Top Quality First-Year Teacher - NWO TEAMS Presentation (open to all)**  
**Presented By:** Angie Bucher, Sylvania Schools **Room: 2119**  
 Christina Imen, Sylvania Schools
- B16 **How to Do Real Science Research with Students in Grades 3-16**  
**Continued in Session C17**  
**Presented By:** W. Robert Midden, Bowling Green State University **Room: 2121**

### VENDOR SESSIONS

- B17 **Amplify Your Genetics Teaching Skills with Carolina's New Inquiries in Science™ Biology Units Continued from Session A17**  
**Presented By:** Carolina Biological Teaching Partner **Room: 2122**
- B18 **Using FOSS Inquiry Lessons to Promote Genuine Learning**  
**Presented By:** Scott Hudson, Delta Education **Room: 2123**

## Conference at a Glance - cont.

### Session C (11:30 am - 12:20 pm)

- C1 **Principals Panel**  
**Presented By:** Tim Holcombe, Oregon City Schools  
 Chuck Jaco, Penta Career Center  
 Brent Swartzmillier, Perrysburg City Schools  
**Room: Auditorium**
- C2 **Using Community Resources – The Success of a Regional Partner Project Grant**  
**Presented By:** Michelle Leow Klinger, Bowling Green State University  
 Linda Calcamuggio, The Toledo Zoo  
 Jule Horn, Lourdes College  
**Room: 1106**
- C3 **Google Earth and Beyond - Project USE-IT Session** **Continued from Session B2**  
**(Limited to USE-IT participants only)**  
**Presented By:** Charlene Patten, WGTE Educational Resource Center  
 Renee deValpine, WGTE Educational Resource Center  
**Room: 3123**
- C4 **Computational Science – What’s It All About?** **Continued from Session B3**  
**Presented By:** James Zubricky, The University of Toledo  
 James Perry, Owens Community College  
 Jean Zorko, Stark State College of Technology  
 Steven Gordon, Professor, The Ohio State University  
**Room: 3100**
- C5 **Explore the Science of the Oil & Gas Industry**  
**Presented By:** Carol Warkentien, Ohio Oil & Gas Energy Education Program  
 Jeanne Gogolski, Ohio Oil & Gas Energy Education Program  
**Room: 2100**
- C6 **Integrating GPS into the Curriculum and Starting Your Own School GPS Club**  
**Presented By:** Jason Hubbard, Perrysburg Schools  
**Room: 2103**
- C7 **I Really Do Study** **Repeated in Session B6**  
**Presented By:** Debra Bercher, Lourdes College  
**Room: 2105**
- C8 **Building a Culture of Problem Solving and Teamwork in Your Classroom: Effective and Easy to Apply Activities Which Help Make Group Problem Solving Really Work**  
**Presented By:** Melanie Fisher, Willoughby-Eastlake City Schools  
 Natalie Fisher, Mentor Exempted Village Schools  
**Room: 2107**
- C9 **Edubuntu: Free Education-centric Operating System and Applications**  
**Presented By:** Dan Schellhas, Bowling Green State University  
**Room: 2109**
- C10 **Random Segregation and Meiosis (High School Biology Teachers only)**  
**Presented By:** Anjali Gray, Lourdes College  
**Room: 2110**

## Conference at a Glance - cont.

- C11 The BEST Way to Teach Science Courses Online**  
**Presented By:** Gwynne Rife, The University of Findlay  
 Julie McIntosh, The University of Findlay  
**Room: 2111**
- C12 Implementing S.T.E.M. at the JHS/HS Level**  
**Presented By:** Jane Music, Penta Career Center  
 Kristie Reighard, Penta Career Center  
 Dan Wyandt, Penta Career Center  
**Room: 2220**
- C13 Selecting & Empowering Great STEM Teachers Through Team Task Interviewing**  
**Presented By:** Virginia Rhodes, Hughes STEM High School  
 Sharon Bachman, Hughes STEM High School  
**Room: 2115**
- C14 Teaching K-2 Math and Science Standards With Hands-On Edible Activities**  
**Presented By:** Kristine Walter, Springfield Local Schools  
**Room: 2117**
- C15 Great Science on the Great Lakes Repeated in Session B14**  
**Presented By:** Lyndsey Manzo, Ohio Sea Grant  
**Room: 2118**
- C16 Science Instruction for All - An Innovative Co-Facilitation Teaching Model to Reach All Learners - NWO TEAMS Presentation**  
**Presented By:** Jenna Pollock, Bowling Green State University  
 Stacey Kessler, Washington Local Schools  
 Kristi Borchardt, Bowling Green State University  
 Rick Worch, Bowling Green State University  
 Cynthia Baum, BGSU Child Development Center  
 Sarah Kijowski, TEAMS Teacher Participant  
**Room: 2119**
- C17 How to Do Real Science Research with Students in Grades 3-16 Continued from Session B16**  
**Presented By:** W. Robert Midden, Bowling Green State University  
**Room: 2121**

### VENDOR SESSIONS

- C18 Building Blocks of Science: Understanding Cells and DNA**  
**Presented By:** Jack Ashton, Carolina Biological  
**Room: 2122**
- C19 Let's Play Games! Making Learning Fun With Educational Games**  
**Presented By:** Kay Hoane, Mother Hubbard's Learning Cupboard  
 Stephanie Wendt, Mother Hubbard's Learning Cupboard  
**Room: 2123**

## Conference at a Glance - cont.

### Session D (1:30 pm - 2:20 pm)

- D1 **New Teachers Panel**  
**Presented By:** Lindsay Friel, Groveport Madison Local Schools  
 Katie Kistler, Springfield Schools  
 Adam Russell, Maumee Schools  
**Room: Auditorium**
- D2 **The Importance of Play in Early Childhood Science Education**  
**Continued in Session E2**  
**Presented By:** Rick Worch, Bowling Green State University  
**Room: 1106**
- D3 **Race to the Future: Integrating 21st Century Skills into Science and Mathematics Instruction** **Continued in Session E3**  
**Presented By:** Emilio Duran, Bowling Green State University  
**Room: 3123**
- D4 **Balloon Ball Bounce and Other Fun Inquiry Lesson Plans**  
**Continued in Session E4**  
**Presented By:** Carin Helfer, The University of Akron  
**Room: 2100**
- D5 **The Owens Ready Bridge: Helping High School Students Prepare for College STEM Classes**  
**Presented By:** Anne Bullerjahn, Owens Community College  
**Room: 2103**
- D6 **MMM...MMM...Math and Other FUN Games! - NWO TEAMS Presentation (open to all)**  
**Presented By:** Stacey Kessler, Washington Local Schools  
 Sarah Proudfoot, Washington Local Schools  
**Room: 2105**
- D7 **Math and Science for the Health of It: Helping Students Understand the Growing Problem of Obesity**  
**Presented By:** Fred Andres, Bowling Green State University  
 Todd Keylock, Bowling Green State University  
**Room: 2107**
- D8 **Click-IIT: Using Clickers to Identify Interventions through Technology**  
**Presented By:** Melissa Askren Edgehouse, Mount Union College  
 Lisa Morse, Lucas County Educational Service Center  
**Room: 2109**
- D9 **Factoring Polynomials Made Simple**  
**Presented By:** Beryl Stemen, Owens Community College  
**Room: 2110**
- D10 **Walking Through Scientific Processes and Other Uses for Student Bodies**  
**Repeated in Session E8**  
**Presented By:** Marya Czech, Lourdes College  
**Room: 2111**

## Conference at a Glance - cont.

- D11 **Foldables: 3-D Interactive Graphic Organizers** **Continued in Session E9**  
**Presented By:** Cherie Hunter, Monroe County Intermediate School District **Room: 2113**
- D12 **Science Notebooks** **Continued in Session E10**  
**Presented By:** Cheryl Pilatowski, Toledo Public Schools **Room: 2115**  
 Julie Campbell, Toledo Public Schools
- D13 **New Programs Blooming at the Garden!**  
**Presented By:** Diane Thurber, Toledo Botanical Garden **Room: 2117**  
 Jeanine Roberts, Toledo Botanical Garden
- D14 **Accommodations/Modifications in Inquiry-Based Teaching Through the Physics of Sound FOSS Kit - NWO TEAMS Presentation (open to all)**  
**Presented By:** Kristi Borchardt, Bowling Green State University **Room: 2118**
- D15 **Who's Doing the Thinking? Assessment for Learning Equals Formative Assessment - NWO TEAMS Presentation (open to all)**  
**Presented By:** Jenna Pollock, Bowling Green State University **Room: 2119**
- D16 **Mashup to Mastery: A DIY Guide for Teachers on Using Free Web Tools to Facilitate Independent Study and Educational Options Experiences**  
**Presented By:** Terry Herman, Bowling Green State University **Room: 3100**  
 Eric Calvert, Bowling Green State University

### VENDOR SESSIONS

- D17 **Need Energy in Your Environmental Classes? Learn about Carolina's NEW Inquiries in Science™ Environmental Series** **Continued in Session E14**  
**Presented By:** Carolina Biological Teaching Partner **Room: 2122**
- D18 **Using Seeds of Science; Roots of Reading Lessons to Promote Genuine Learning**  
**Presented By:** Scott Hudson, Delta Education **Room: 2123**

## Conference at a Glance - cont.

### Session E (2:30 pm - 3:20 pm)

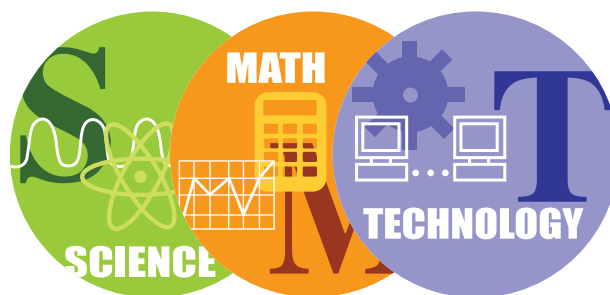
- |     |   |                         |
|-----|---|-------------------------|
| E1  | <b>Meeting the STEM Initiative with INFOhio: Science, Math, and Technology Resources</b><br><i>Presented By:</i> Paula Nespeca Deal, INFOhio  | <b>Room: Auditorium</b> |
| E2  | <b>The Importance of Play in Early Childhood Science Education</b><br><b>Continued from Session D2</b><br><i>Presented By:</i> Rick Worch, Bowling Green State University                                 | <b>Room: 1106</b>       |
| E3  | <b>Race to the Future: Integrating 21st Century Skills into Science and Mathematics Instruction</b> <b>Continued from Session D3</b><br><i>Presented By:</i> Emilio Duran, Bowling Green State University | <b>Room: 3123</b>       |
| E4  | <b>Balloon Ball Bounce and Other Fun Inquiry Lesson Plans</b><br><b>Continued from Session D4</b><br><i>Presented By:</i> Carin Helfer, The University of Akron   | <b>Room: 2100</b>       |
| E5  | <b>Making Technology Work for You in the Science Classroom</b><br><i>Presented By:</i> Kathy Laney, Hicksville Schools  | <b>Room: 2103</b>       |
| E6  | <b>Games and Activities for the Early Childhood Classroom</b><br><i>Presented By:</i> Pamela Van Mooy, Bowling Green State University   | <b>Room: 2109</b>       |
| E7  | <b>Individual Differences: Not Just the Math and Science Students. What About the Teachers and Professors?</b><br><i>Presented By:</i> Richard Oldrieve, Bowling Green State University                   | <b>Room: 2110</b>       |
| E8  | <b>Walking Through Scientific Processes and Other Uses for Student Bodies</b><br><b>Repeated in Session D10</b><br><i>Presented By:</i> Marya Czech, Lourdes College                                      | <b>Room: 2111</b>       |
| E9  | <b>Foldables: 3-D Interactive Graphic Organizers</b><br><b>Continued from Session D11</b><br><i>Presented By:</i> Cherie Hunter, Monroe County Intermediate School District                               | <b>Room: 2113</b>       |
| E10 | <b>Science Notebooks</b> <b>Continued from Session D12</b><br><i>Presented By:</i> Cheryl Pilatowski, Toledo Public Schools<br>Julie Campbell, Toledo Public Schools                                      | <b>Room: 2115</b>       |

## Conference at a Glance - cont.

- E11 **Locally Focused Modules: Science Teachers, Science Students, and Scientists Collaborating for Understanding**  
*Presented By:* Andrea Milner, Adrian College  
 Kimberly Lemon, Adrian College **Room: 2117**
- E12 **The Ohio Junior Science and Humanities Symposium: A Program to Encourage and Recognize Student Achievement in the Sciences, Mathematics, and Engineering at the High School Level**  
*Presented By:* Emilio Duran, Bowling Green State University  
 Hans Glandorff, Bowling Green City Schools  
 Iris Szelagowski, Bowling Green State University **Room: 2118**

### VENDOR SESSIONS

- E13 **Stratologica-The Learning is in the Layers**  
*Presented By:* Trevor Walsh, Nystrom Social Studies **Room: 2121**
- E14 **Need Energy in Your Environmental Classes? Learn about Carolina's NEW Inquiries in Science™ Environmental Series** *Continued from Session D17*  
*Presented By:* Carolina Biological Teaching Partner **Room: 2122**
- E15 **Science Investigations: Students, Notebooks, and the Power of Inquiry**  
*Presented By:* Jack Ashton, Carolina Biological **Room: 2123**



Northwest Ohio Symposium on Science,  
 Mathematics, and Technology Teaching





Earth/Space Science



Mathematics



Pre-Service



General Science



Pedagogy



Technology



Life Science



Physical Science

### Session A (9:30 am - 10:20 am)

#### A1 "Houston, this is Discovery. We are beginning our tasks." Challenger Learning Center



##### Micro-nauts Program



Traveling at 230 miles above the Earth, your elite team of young scientists, engineers, and mathematicians will engage in unique research using a variety of hands-on experiments relating to sound, mass, insects, germs, and much more. The crew will manipulate scientific tools to collect, record, and analyze data and integrate academic disciplines.

**Presented by:** Reed Steele, Challenger Learning Center of Lucas County

Lynnette Pewett, Challenger Learning Center of Lucas County

**Grade Levels:** PK-3

**Room:** 1106

#### A2 Collaboration Beyond the Classroom through Wikis (LIMIT 20)



The educational power of the wiki, a participant built website, is reflected in the collaborative sharing of content and resources using a standard Web browser. Building a learner-centered, discipline-specific learning community that extends discourse beyond the classroom via wikis has significant implications for students, parents, and teachers.

**Presented by:** Terry Herman, Bowling Green State University

Larry Hatch, Bowling Green State University

**Grade Levels:** 4-12, Undergraduate, Faculty/Administrator

**Room:** 3123

#### A3 Web 2.0 for Teachers



This session will focus on the understanding and application of the new Web 2.0 technologies (such as Blogging, Wikis, etc) that are beginning to transform education. This session aims to remove the mysteries associated with Web 2.0 and to assist teachers to create new cultures of learning and teaching in their classes.

**Presented by:** Lan Li, Bowling Green State University

**Grade Levels:** PK-12, Undergraduate, Faculty/Administrator

**Room:** 3100

## A4 Reptiles in the Classroom



Having live animals in the classroom can function to spark student interest in science. Reptiles represent a diverse group of organisms easily maintained in the classroom and incorporated into lessons at all levels. A variety of reptiles will be displayed, along with care instructions and lesson plans developed as part of a BGSU Biology course. **Repeated in Session B4.**

**Presented by:** Eileen Underwood, Bowling Green State University

**Grade Levels:** PK-12, Undergraduate

**Room:** 2100

## A5 Elementary GLOBE: Hands-On Environmental Education Programs (LIMIT 22)



Join us for an interactive presentation on the Elementary GLOBE Program, an international environmental education program focusing on topics including soil, weather and atmosphere, water, and earth as a system. Participants will leave with classroom-ready, standards-based lessons that will motivate both students and teachers. Good stuff... don't miss it! **Repeated in Session B5.**

**Presented by:** Jodi Haney, Bowling Green State University

Audra Wiles, Bowling Green State University

**Grade Levels:** PK-6, Undergraduate

**Room:** 2103

## A6 Jazzin' Up General College Chemistry



Requirements such as a group research project, service learning, use of a computer interface in the lab, utilization of an online course management system, and inquiry-based learning were added to help make general chemistry more interesting and applicable to everyday life, as well as to enhance students' critical thinking skills.

**Presented by:** Elizabeth Wise, Lourdes College

**Grade Levels:** 11-12, Undergraduate, Faculty/Administrator

**Room:** 2105

## A7 Quantitative Biology: Data Collection and Modeling



Scientific software has become very accessible for the high school classroom. Biology students at Seneca East High School developed, tested, and then modeled their own hypotheses using the system dynamics software Simulink. A summary of the project and a demonstration of quantitative modeling software products and applications will be given.

**Presented by:** Jon Darkow, Seneca East High School

**Grade Levels:** 9-12, Undergraduate

**Room:** 2107



## A8 The Achievement Gap



I will discuss the achievement gap, possible reasons for the gap, and possible solutions to closing the gap. I will also discuss the other achievement gap.



**Presented by:** Raymond Heitger, Bowling Green State University

**Grade Levels:** PK-12

**Room:** 2109

## A9 The Mathematical Arts (LIMIT 20)



What mathematical objects can you make with paper plates, bobby pins and tape? In this session, you will transform common objects into mathematical objects that both can be useful as teaching tools in the classroom as well as a unique way to decorate your classroom.

**Presented by:** David Meel, Bowling Green State University

**Grade Levels:** 4-12, Undergraduate, Faculty/Administrator

**Room:** 2110

## A10 Watching Your Students' Knowledge Blossom



What role does Bloom's taxonomy play in preparing students for the 21st century? Receive updated information on Bloom's taxonomy and its application in technology. Practical classroom strategies will be showcased. *Repeated in Session B10.*

**Presented by:** Janet Struble, The University of Toledo

**Grade Levels:** 4-12

**Room:** 2111

## A11 Rain Gardens: Nature's Way of Clearing the Storm



The Rain Garden Initiative aims to introduce rain gardens as a natural way of managing stormwater. Rain gardens offer the educational benefits of gardening while addressing issues of water quality. Learn rain garden basics and how they can be used to provide hands-on learning experiences in the sciences.

**Presented by:** Marilyn DuFour, Rain Garden Initiative of Toledo

Jamie Kochensparger, Lucas Soil & Water Conservation District

**Grade Levels:** 4-12

**Room:** 2113



## A12 Imagination Station Teacher Resources



Learn about all the great resources that the Imagination Station, formerly COSI Toledo, has for you! In addition, we will provide some ideas for engaging, hands-on classroom activities.

**Presented by:** Sloan Eberly, Imagination Station

**Grade Levels:** PK-8

**Room:** 2115

## A13 Project pi r<sup>2</sup> - Teaching Ohio Native Plant and Animal Species – Part 1 of 2



**(Limited to pi r<sup>2</sup> participants only)**



This program is part one of a double session required for Partners in Inquiry Resources and Research (pi r<sup>2</sup>) teachers. Join us for an exciting introduction into the world of Ohio native plant and animal species. Learn new ways to make science come alive for students in their own backyards!

**Presented by:** Heather Norris, Toledo Area Metroparks

**Grade Levels:** PK-8

**Room:** 2117

## A14 Preschool Science and Pre-Service Teachers - What's the Connection?



**NWO TEAMS Presentation (open to all)**



How using FOSS kits helped to increase pre-service teachers' comfort level with teaching science and preschoolers' exposure to inquiry based, hands-on science instruction. Findings from our pre-service teacher research project will be shared as well as how to use inquiry based, hands-on FOSS lessons with preschoolers. Come ready to "do" some science!

**Presented by:** Cynthia Baum, BGSU Child Development Center  
Susan Peet, Bowling Green State University

**Grade Levels:** PK-3, Faculty/Administrator

**Room:** 2118

## A15 Addressing Your Students' Science Misconceptions: Breaking Through the Barriers to



**Student Learning - NWO TEAMS Presentation (open to all)**



Students enter your classrooms with conceptions about science phenomena that are not always accurate. Discover why these misconceptions become barriers to learning, and what you can do to fight back! The presenters will introduce fun and easy assessment activities to uncover science misconceptions and maximize student learning.

**Presented by:** Jacob Burgoon, Bowling Green State University  
Michelle Leow Klingler, Bowling Green State University

**Grade Levels:** PK-12, Undergraduate, Faculty/Administrator

**Room:** 2119



## VENDOR SESSIONS

**A16 GEMS: Eggs, Eggs, Everywhere**

This GEMS kit introduces the amazing egg and explores related life science concepts. Use observation and science skills as well as role-playing, drama, and art to discover the diversity of animals that come from eggs. Join us for this interactive session.

**Presented by:** Jack Ashton, Carolina Biological

**Grade Levels:** PK-1

**Room:** 2121

**A17 Amplify Your Genetics Teaching Skills with Carolina's New Inquiries in Science™ Biology Units**

Want to crack the mystery of genetics for your students? Increase student achievement on difficult concepts such as nucleic acids, genetic inheritance, and biotechnology by using a guided-inquiry approach. Carolina's Inquiries in Science™ Biology units provide hands-on activities to make teaching challenging topics effortless. Free door prizes! **Continued in Session B17.**

**Presented by:** Carolina Biological Teaching Partner

**Grade Levels:** 9-12

**Room:** 2122

**A18 Using Delta Science Module Lessons to Promote Genuine Learning**

Do you want to teach the required standards and indicators in a way that will actively engage students while they are really learning deeper concepts? Participate in a hands-on lesson from the Delta Science Modules curriculum to see how it uses inquiry and reading to lead students to discover concepts. Door prizes will be awarded.

**Presented by:** Scott Hudson, Delta Education

**Grade Levels:** 4-8

**Room:** 2123



## Session B (10:30 am - 11:20 am)

### B1 Top 10 Tools for Teachers



Learn how a handful of technology tools can make your students a little more engaged, your teaching a little more effective, and your life a little simpler. Ten tools (many free) will be the focus, but others will be discussed as well. Come share your favorites! Handout provided.

**Presented by:** Carrie Rathsack, Rossford Schools

**Grade Levels:** PK-12, Undergraduate, Faculty/Administrator

**Room:** 1106

### B2 Google Earth and Beyond - Project USE-IT session (Limited to USE-IT participants only)



Google Earth continues to mesmerize students with its ability to put the world's geographic information at their fingertips. In this hands on session we will explore the content rich layers in Google earth, discover special features, and learn how students can create their own tours.

**Continued in Session C3.**

**Presented by:** Charlene Patten, WGTE Educational Resource Center  
Renee deValpine, WGTE Educational Resource Center

**Grade Levels:** 4-12

**Room:** 3123

### B3 Computational Science – What's It All About?



Four institutions in the state of Ohio are creating a brand new program: the Associates of Science degree in Computational Sciences. In this program, we intend to give an overview of this program, as well as have users walk through several take-home activities that teachers can use in their classrooms in biology, math, chemistry, and physics! **Continued in Session C4.**

**Presented by:** James Zubricky, The University of Toledo  
James Perry, Owens Community College  
Jean Zorko, Stark State College of Technology  
Steven Gordon, Professor, The Ohio State University

**Grade Levels:** 11-12, Undergraduate, Faculty/Administrator

**Room:** 3100

### B4 Reptiles in the Classroom



Having live animals in the classroom can function to spark student interest in science. Reptiles represent a diverse group of organisms easily maintained in the classroom and incorporated into lessons at all levels. A variety of reptiles will be displayed, along with care instructions and lesson plans developed as part of a BGSU Biology course. **Repeated in Session A4.**

**Presented by:** Eileen Underwood, Bowling Green State University

**Grade Levels:** PK-12, Undergraduate

**Room:** 2100

## B5 Elementary GLOBE: Hands-On Environmental Education Programs (LIMIT 22)



Join us for an interactive presentation on the Elementary GLOBE Program, an international environmental education program focusing on topics including soil, weather and atmosphere, water, and earth as a system. Participants will leave with classroom-ready, standards-based lessons that will motivate both students and teachers. Good stuff... don't miss it! **Repeated in Session A5.**

**Presented by:** Jodi Haney, Bowling Green State University  
Audra Wiles, Bowling Green State University

**Grade Levels:** PK-6, Undergraduate

**Room:** 2103

## B6 I Really Do Study



"I really did study." How many times have teachers heard this statement from students after a poor performance on a test? Join us. We'll examine the characteristics of novice students and see how their strategies differ from those used by successful students. Ideas for moving novices toward becoming expert students will be discussed too. **Repeated in Session C7.**

**Presented by:** Debra Bercher, Lourdes College

**Grade Levels:** 7-12, Undergraduate

**Room:** 2105

## B7 Inherent Differentiated Instruction in Long Term Project Learning



This presentation will feature excerpts from three student teachers' unit plans that implement long term project learning. Unit plans include: middle childhood science, middle childhood math, and a high school English WebQuest project. These unit plans improve student learning because the differentiation is embedded into the instruction.

**Presented by:** Amy Biggs, Mount Vernon Nazarene University  
Zach Miller, Mount Vernon Nazarene University  
Dawn Davis, Mount Vernon Nazarene University  
Heather Miller Porter, Mount Vernon Nazarene University

**Grade Levels:** 4-12, Undergraduate

**Room:** 2107

## B8 Crazy Bones and More!



Learn about Crazy Bones, a math based game. I'll show you how to implement this along with other math games in a fun learning environment with a flexible structure. This will be a hands on experience with games available to try.

**Presented by:** Joe Sarnes, Perrysburg Schools

**Grade Levels:** PK-6

**Room:** 2109



## B9 Introducing Elementary Students to the Power of Observation in the Inquiry Science



### Classroom - *NWO TEAMS Presentation (open to all)*

This session includes activities and resources for encouraging elementary age students to explore the scientific inquiry skill of making observations and formulating inferences. Suggestions for simple materials and resources will be provided. Get your students excited about gathering information, while developing their scientific habits!

**Presented by:** Robyne Kramp, Bowling Green City Schools

**Grade Levels:** 4-6

**Room:** 2110

## B10 Watching Your Students' Knowledge Blossom



What role does Bloom's taxonomy play in preparing students for the 21st century? Receive updated information on Bloom's taxonomy and its application in technology. Practical classroom strategies will be showcased. **Repeated in Session A10.**

**Presented by:** Janet Struble, The University of Toledo

**Grade Levels:** 4-12

**Room:** 2111

## B11 Energy on the Move!



The Timberstone Junior High School E-Wolves comprised of 6th and 7th grade girls will present the energy bike that demonstrates energy conservation and efficiency. The audience will participate in this hands-on demonstration. A companion energy efficiency kit intended for home use will also be discussed.

**Presented by:** Rini Ng, Timberstone Junior High School; Adriana Noritz, 7th Grade Student

Naveen Rehman, 7th Grade Student; Alli Clausius, 6th Grade Student

Bhakti Dixit, 6th Grade Student; Katie Hsieh, 6th Grade Student

Mickey Krueger, 6th Grade Student; Jacquelyne Miksanek, 6th Grade Student

Maheen Nadeem, 6th Grade Student; Emily Westphal, 6th Grade Student

**Grade Levels:** 4-8

**Room:** 2113





## B12 Introducing Educaching – A GPS Based Curriculum and Lessons for Teachers



Discover how other educators are using GPS technology to engage and motivate their students. Using the Educaching curriculum, explore sample lessons that utilize this technology tool to teach math, science, social studies, and more. Authored by an Ohio teacher, all Educaching GPS lessons align with Ohio and national teaching standards.

**Presented by:** Bob Rumschlag, SDG Creations, Ltd  
Mike Bilik, SDG Creations, Ltd

**Grade Levels:** 4-12, Technology Coordinator

**Room:** 2115

## B13 Project pi r<sup>2</sup> - Teaching Ohio Native Plant and Animal Species – Part 2 of 2



**(Limited to pi r<sup>2</sup> participants only)**

This session is required for teachers who are part of the Partners In Inquiry Resources and Research (pi r<sup>2</sup>) project. Only those enrolled in pi r<sup>2</sup> may attend. Join the Toledo Botanical Garden for an interactive, hands-on, standards-based session on Classification - Profiling Ohio Native Plants and Animals.

**Presented by:** Diane Thurber, Toledo Botanical Garden  
Jeanine Roberts, Toledo Botanical Garden

**Grade Levels:** PK-8

**Room:** 2117

## B14 Great Science on the Great Lakes



Looking for opportunities to increase your science content knowledge, work alongside researchers, and acquire new teaching strategies? Learn about OSU's Stone Laboratory and COSEE Great Lakes' hands-on professional development opportunities, including weeklong field- and ship-based classes and standards-based curricular materials. Participants will receive sample lessons and information on upcoming PD. **Repeated in Session C15.**

**Presented by:** Lyndsey Manzo, Ohio Sea Grant

**Grade Levels:** 4-12, Undergraduate, Faculty/Administrator

**Room:** 2118

## B15 Boost Your Confidence as an Educator and Become a Top Quality First-Year Teacher



### NWO TEAMS Presentation (open to all)



Come and find out what you can do to become an effective first year-teacher! Presented by two first-year teachers, Christina and Angie will tell you about their roads to success. They will share the resources that allowed them to become confident educators as well as great ways to engage/motivate students.

**Presented by:** Angie Bucher, Sylvania Schools  
Christina Imen, Sylvania Schools

**Grade Levels:** PK-8

**Room:** 2119

## B16 How to Do Real Science Research with Students in Grades 3-16



This session will provide two examples of scientific research projects that meet important community needs and are suitable for college and high school students. I will explain the factors that are used to design such research projects and make them suitable for students as young as third grade. **Continued in Session C17.**

**Presented by:** W. Robert Midden, Bowling Green State University

**Grade Levels:** 4-12, Undergraduate, Faculty/Administrator

**Room:** 2121

## VENDOR SESSIONS

## B17 Amplify Your Genetics Teaching Skills with Carolina's New Inquiries in Science™ Biology Units



Want to crack the mystery of genetics for your students? Increase student achievement on difficult concepts such as nucleic acids, genetic inheritance, and biotechnology by using a guided-inquiry approach. Carolina's Inquiries in Science™ Biology units provide hands-on activities to make teaching challenging topics effortless. Free door prizes! **Continued from Session A17.**

**Presented by:** Carolina Biological Teaching Partner

**Grade Levels:** 9-12

**Room:** 2122

## B18 Using FOSS Inquiry Lessons to Promote Genuine Learning



Are you looking for a way to use inquiry with your students with lessons and materials that are proven by research to be effective? Participate in a hands-on lesson from the FOSS curriculum to see how it uses inquiry to lead students to discover concepts. Door prizes will be awarded.

**Presented by:** Scott Hudson, Delta Education

**Grade Levels:** PK-3

**Room:** 2123



Earth/Space Science



General Science



Life Science



Mathematics



Pedagogy



Physical Science



Pre-Service



Technology

## Session C (11:30 am - 12:20 pm)

### C1 Principals Panel

Chat with local principals and learn what they are looking for in new hires.

**Presented by:** Tim Holcombe, Oregon City Schools  
 Chuck Jaco, Penta Career Center  
 Brent Swartzmillier, Perrysburg City Schools

**Grade Levels:** PK-12

**Room:** Auditorium

### C2 Using Community Resources – The Success of a Regional Partner Project Grant



Toledo Zoo, Lourdes College Theatervision, and others will share their successes on receiving an NWO Regional Partner Project grant and implementing a community-wide, inquiry-based teacher professional development program that teachers love.

**Presented by:** Michelle Leow Klinger, Bowling Green State University  
 Linda Calcamuggio, The Toledo Zoo  
 Jule Horn, Lourdes College

**Grade Levels:** PK-12

**Room:** 1106

### C3 Google Earth and Beyond - Project USE-IT session (Limited to USE-IT participants only)



Google Earth continues to mesmerize students with its ability to put the world's geographic information at their fingertips. In this hands on session we will explore the content rich layers in Google earth, discover special features, and learn how students can create their own tours.

**Continued from Session B2.**

**Presented by:** Charlene Patten, WGTE Educational Resource Center  
 Renee deValpine, WGTE Educational Resource Center

**Grade Levels:** 4-12

**Room:** 3123

### C4 Computational Science – What's It All About?



Four institutions in the state of Ohio are creating a brand new program: the Associates of Science degree in Computational Sciences. In this program, we intend to give an overview of this program, as well as have users walk through several take-home activities that teachers can use in their classrooms in biology, math, chemistry, and physics! **Continued from Session B3.**

**Presented by:** James Zubricky, The University of Toledo  
 James Perry, Owens Community College  
 Jean Zorko, Stark State College of Technology  
 Steven Gordon, Professor, The Ohio State University

**Grade Levels:** 11-12, Undergraduate, Faculty/Administrator

**Room:** 3105



Earth/Space Science



General Science



Life Science



Mathematics



Pedagogy



Physical Science



Pre-Service



Technology

## C5 Explore the Science of the Oil & Gas Industry



Get energy education resources focusing on an Ohio industry: activity guide with experiments in geology, chemistry, earth science, access to teacher-developed lesson plans, “field trip” videos to industry sites, science fair information. Sponsored by OOGEEP (Ohio Oil & Gas Energy Education Program).

**Presented by:** Carol Warkentien, Ohio Oil & Gas Energy Education Program  
Jeanne Gogolski, Ohio Oil & Gas Energy Education Program

**Grade Levels:** 7-10

**Room:** 2100

## C6 Integrating GPS into the Curriculum and Starting Your Own School GPS Club



Inspired by geocaching, a fifth grade teacher will present ideas that incorporate GPS technology with core subjects. Participants will learn how to create engaging high tech scavenger hunts that enhance the learning environment. The presentation will also provide helpful strategies on how to pioneer your school’s very first GPS Club.

**Presented by:** Jason Hubbard, Perrysburg Schools

**Grade Levels:** PK-12

**Room:** 2103

## C7 I Really Do Study



“I really did study.” How many times have teachers heard this statement from students after a poor performance on a test? Join us. We’ll examine the characteristics of novice students and see how their strategies differ from those used by successful students. Ideas for moving novices toward becoming expert students will be discussed too. **Repeated in Session B6.**

**Presented by:** Debra Bercher, Lourdes College

**Grade Levels:** 7-12, Undergraduate

**Room:** 2105

## C8 Building a Culture of Problem Solving and Teamwork in Your Classroom: Effective and Easy to Apply Activities Which Help Make Group Problem Solving Really Work



Do you struggle to get students to work effectively and problem solve together? Come learn how to build a collaborative environment where students become problem solvers. We will share ideas for how to develop students’ teamwork skills. Leave with problems and activities you can use in your classroom the following day.

**Presented by:** Melanie Fisher, Willoughby-Eastlake City Schools  
Natalie Fisher, Mentor Exempted Village Schools

**Grade Levels:** 4-10

**Room:** 2107



## C9 Edubuntu: Free Education-centric Operating System and Applications



The Edubuntu distribution of Linux is a free operating system that can be run from a CD and includes applications for many levels of mathematics and science education.



**Presented by:** Dan Schellhas, Bowling Green State University

**Grade Levels:** PK-12

**Room:** 2109

## C10 Random Segregation and Meiosis (LIMIT 14, high school biology teachers only)



We will explore an interesting way to teach random segregation in meiosis using an unusual model system. Students will be able to see the production of a variety of gametes and offsprings as a result of this approach.

**Presented by:** Anjali Gray, Lourdes College

**Grade Levels:** 9-12

**Room:** 2110

## C11 The BEST Way to Teach Science Courses Online



Becoming an Excellent Science Teacher (BEST): An online teacher preparation program has completed its third year. The success of a new course (EDSP610 Modern Concepts in Biology) supported by an NWO grant for curriculum modification will be shared. The pros and cons of running an online program will be discussed.

**Presented by:** Gwynne Rife, The University of Findlay  
Julie McIntosh, The University of Findlay

**Grade Levels:** Faculty/Administrator

**Room:** 2111

## C12 Implementing S.T.E.M. at the JHS/HS Level



Find out how one school district introduced STEM (Science, Technology, Engineering, and Math) career opportunities to students in grades 7-12 using existing and new curriculum. Learn how to apply STEM concepts to your classroom and attract students to STEM careers of tomorrow.

**Presented by:** Jane Music, Penta Career Center  
Kristie Reighard, Penta Career Center  
Dan Wyandt, Penta Career Center

**Grade Levels:** 7-12, Undergraduate, Career-Technical

**Room:** 2220



### C13 Selecting & Empowering Great STEM Teachers Through Team Task Interviewing



STEM programs require not only knowledgeable core teachers, but those who can effectively collaborate, communicate, and build teams and community. Need the right people on the bus? Cincinnati's Hughes STEM High School teachers executed a Team Task Interview process that brought forth a powerful and collaborative result, and is easy to replicate.

**Presented by:** Virginia Rhodes, Hughes STEM High School  
Sharon Bachman, Hughes STEM High School

**Grade Levels:** 7-12

**Room:** 2115

### C14 Teaching K-2 Math and Science Standards With Hands-On Edible Activities



This session will demonstrate how to use food as a form of motivation to learn about math and science topics such as measurement, geometry, patterns, fractions, data collection/graphing, and solar energy.

**Presented by:** Kristine Walter, Springfield Local Schools

**Grade Levels:** PK-2

**Room:** 2117

### C15 Great Science on the Great Lakes



Looking for opportunities to increase your science content knowledge, work alongside researchers, and acquire new teaching strategies? Learn about OSU's Stone Laboratory and COSEE Great Lakes' hands-on professional development opportunities, including weeklong field- and ship-based classes and standards-based curricular materials. Participants will receive sample lessons and information on upcoming PD. **Repeated in Session B14.**

**Presented by:** Lyndsey Manzo, Ohio Sea Grant

**Grade Levels:** 4-12, Undergraduate, Faculty/Administrator

**Room:** 2118



## C16 Science Instruction for All - An Innovative Co-Facilitation Teaching Model to Reach All



**Learners - NWO TEAMS Presentation (open to all)**



A panel of experienced educators will share their strategies on implementing an innovative approach to a co-facilitation teaching model. This model was successfully implemented throughout the NWO TEAMS teacher professional development project. The model consists of a scientist, a lead teacher, a special educator, and classroom teacher participants.

**Presented by:** Jenna Pollock, Bowling Green State University  
 Stacey Kessler, Washington Local Schools  
 Kristi Borchardt, Bowling Green State University  
 Rick Worch, Bowling Green State University  
 Cynthia Baum, BGSU Child Development Center  
 Sarah Kijowski, TEAMS Teacher Participant

**Grade Levels:** Faculty/Administrator

**Room:** 2119

## C17 How to Do Real Science Research with Students in Grades 3-16



This session will provide two examples of scientific research projects that meet important community needs and are suitable for college and high school students. I will explain the factors that are used to design such research projects and make them suitable for students as young as third grade. **Continued from Session B16.**

**Presented by:** W. Robert Midden, Bowling Green State University

**Grade Levels:** 4-12, Undergraduate, Faculty/Administrator

**Room:** 2121



## VENDOR SESSIONS

**C18 Building Blocks of Science: Understanding Cells and DNA**

This hands-on kit guides students to an understanding of cell structure and function, and the inherited characteristics determined by DNA. Use hand lenses to observe microorganism details through magnification. Discover the organelles of plant and animal cells by building a 3-dimensional cell model. Explore DNA by extracting it from strawberry cells.

**Presented by:** Jack Ashton, Carolina Biological

**Grade Levels:** 3-5

**Room:** 2122

**C19 Let's Play Games! Making Learning Fun With Educational Games**

Learning can be more fun using educational games for all ages in all subject areas! Sample games, such as Smart Mouth, Sum Swamp, Math Noodlers, Spill Your Guts, Planet Quest, and many more will be explained and demonstrated.

**Presented by:** Kay Hoane, Mother Hubbard's Learning Cupboard  
Stephanie Wendt, Mother Hubbard's Learning Cupboard

**Grade Levels:** PK-6

**Room:** 2123





## Session D (1:30 pm - 2:20 pm)

### D1 New Teachers Panel



This session will provide advice about the first year of teaching and things you don't learn in college.

**Presented by:** Lindsay Friel, Groveport Madison Local Schools  
Katie Kistler, Springfield Schools  
Adam Russell, Maumee Schools

**Grade Levels:** PK-12, Undergraduate

**Room:** Auditorium

### D2 The Importance of Play in Early Childhood Science Education



This session presents strategies to promote learning science through play in early childhood environments. Learn how to plan playful, science-related learning experiences inside and outside the classroom and how to expand children's conceptual understanding as opportunities arise during free play. **Continued in Session E2.**

**Presented by:** Rick Worch, Bowling Green State University

**Grade Levels:** PK-3

**Room:** 1106

### D3 Race to the Future: Integrating 21st Century Skills into Science and Mathematics Instruction (LIMIT 20)



This exciting activity is modeled after the reality television show, The Amazing Race, and exemplifies how 21st century skills can be incorporated into core subject instruction as means to enhance student engagement. **Continued in Session E3.**

**Presented by:** Emilio Duran, Bowling Green State University

**Grade Levels:** 9-12, Undergraduate

**Room:** 3123

### D4 Balloon Ball Bounce and Other Fun Inquiry Lesson Plans



Join us and make a bouncing ball from balloons! Learn how this hands-on activity can be used in your classroom as an inquiry-based lesson. View free, online resources from the Akron Global Polymer Academy. Finally, play with other polymers (rubber, plastic, film, fiber, adhesives) and learn about these fascinating materials. **Continued in Session E4.**

**Presented by:** Carin Helfer, The University of Akron

**Grade Levels:** 4-8

**Room:** 2100



Earth/Space Science



General Science



Life Science



Mathematics



Pedagogy



Physical Science



Pre-Service



Technology

## D5 The Owens Ready Bridge: Helping High School Students Prepare for College STEM Classes



Owens College and BGSU have received an NSF STEP grant to increase the number of students majoring in STEM fields. As part of this project, we have developed a summer class at Owens that gives students hands-on experience in math, ecology, chemistry, and biotechnology. Students also receive a stipend. I will describe the course and future plans.

**Presented by:** Anne Bullerjahn, Owens Community College

**Grade Levels:** 11-12

**Room:** 2103

## D6 MMM...MMM...Math and Other FUN Games! - *NWO TEAMS Presentation (open to all)*



Teachers will explore hands-on activities that teach elementary math concepts using food. Activities and games will explore concepts such as: addition, multiplication, area, perimeter, graphing, and of course, subtraction! Learn games that are easy to implement and can be modified to meet different learning levels within your classroom.

**Presented by:** Stacey Kessler, Washington Local Schools  
Sarah Proudfoot, Washington Local Schools

**Grade Levels:** PK-3

**Room:** 2105

## D7 Math and Science for the Health of It: Helping Students Understand the Growing Problem of Obesity



Obesity has reached epidemic status in the US. Science and math can be used to assess body weight and body composition. Join us for a look at the problem and how math and science can be used to help educate those at risk, which unfortunately includes most of us. Body fat, waist-to-hip ratio, and BMI, oh my!

**Presented by:** Fred Andres, Bowling Green State University  
Todd Keylock, Bowling Green State University

**Grade Levels:** 7-12, Undergraduate, Faculty/Administrator

**Room:** 2103

## D8 Click-IIT: Using Clickers to Identify Interventions through Technology



The lesson is over and students are leaving soon. Can you learn what they know in just a few clicks? Discover how Classroom Response Systems (aka Clickers) are transforming the way students are assessed and teachers teach. Participants will explore both quick and extensive formative assessments they can try tomorrow!

**Presented by:** Melissa Askren Edgehouse, Mount Union College  
Lisa Morse, Lucas County Educational Service Center

**Grade Levels:** 7-12

**Room:** 2109



Earth/Space Science



General Science



Life Science



Mathematics



Pedagogy



Physical Science



Pre-Service



Technology

## D9 Factoring Polynomials Made Simple



We have rules for factoring numbers, so I used the same concept for factoring polynomials. It all depends on the number of terms in the polynomial expression.

**Presented by:** Beryl Stemen, Owens Community College

**Grade Levels:** 7-12, Undergraduate

**Room:** 2110

## D10 Walking Through Scientific Processes and Other Uses for Student Bodies



Move your desks aside and create room for walking, acting, dancing, and other ways to demonstrate atoms, molecules, how they combine, and the processes in which they are involved. Use conga lines for types of waves and wavelengths. Processes like photosynthesis, protein synthesis, and mitosis are better understood by “going through the motions.” **Repeated in Session E8.**

**Presented by:** Marya Czech, Lourdes College

**Grade Levels:** 4-10

**Room:** 2111

## D11 Foldables: 3-D Interactive Graphic Organizers



Come join the fun using Dinah Zike’s Foldables. Foldables are three-dimensional interactive graphic organizers that are used as study organizers for daily work, note-taking activities, student-directed projects, and forms of alternative assessments. Sign up for this interactive session as you learn to design and fold each type of Foldable. **Continued in Session E9.**

**Presented by:** Cherie Hunter, Monroe County Intermediate School District

**Grade Levels:** K-8

**Room:** 2113

## D12 Science Notebooks



Strategies will be presented to utilize science notebooks effectively in the classroom. During the presentation, teachers will engage in an inquiry-based activity highlighting a Science & Technology indicator and develop a science notebook by implementing the information acquired. **Continued in Session E10.**

**Presented by:** Cheryl Pilatowski, Toledo Public Schools

Julie Campbell, Toledo Public Schools

**Grade Levels:** PK-8

**Room:** 2115



### D13 New Programs Blooming at the Garden!



Join the educators from Toledo Botanical Garden to get a peek at some new programs we are offering for 2010. Responding to teachers' requests for programs specifically designed for the "trickier" science standards; join us to sample our new inquiry-based In-Class programs on Natural Resources, the Water Cycle, Energy Transfer, and Soil Composition.

**Presented by:** Diane Thurber, Toledo Botanical Garden  
Jeanine Roberts, Toledo Botanical Garden

**Grade Levels:** PK-6

**Room:** 2117

### D14 Accommodations/Modifications in Inquiry-Based Teaching Through the Physics of Sound



#### FOSS Kit for Pre-Service Teachers - **NWO TEAMS Presentation (open to all)**

Attendees will have experiences in the Physics of Sound FOSS kit at the 3rd/4th grade level. During this experience, the class will discuss ideas for accommodations and modifications to use in the regular classroom. This is geared for pre-service teachers.

**Presented by:** Kristi Borchardt, Bowling Green State University

**Grade Levels:** Undergraduate

**Room:** 2118

### D15 Who's Doing the Thinking? Assessment for Learning Equals Formative Assessment



#### **NWO TEAMS Presentation (open to all)**



Effective teaching requires knowing what students are learning. Effective assessment practice can transform your classroom culture. This session will offer strategies for creating an effective system for assessment in your classroom. You will be ready to implement them on Monday!

**Presented by:** Jenna Pollock, Bowling Green State University

**Grade Levels:** PK-8

**Room:** 2119



## D16 Mashup to Mastery: A DIY Guide for Teachers on Using Free Web Tools to Facilitate Independent Study and Educational Options Experiences (LIMIT 20)



The e-portfolio concept is an attractive tool for authentic assessment, individualizing learning experiences, and cultivating media literacies, although cost and technical issues have limited adoption. These barriers can be overcome by combining free online tools. We will demonstrate how to connect read/write web tools into a full-featured system.

**Presented by:** Terry Herman, Bowling Green State University  
Eric Calvert, Bowling Green State University

**Grade Levels:** 7-12, Undergraduate, Faculty/Administrator

**Room:** 3100

### VENDOR SESSIONS

## D17 Need Energy in Your Environmental Classes? Learn about Carolina's NEW Inquiries in Science™ Environmental Series



Looking for relevant, exciting lab activities for environmental science? Investigate climate change and explore alternative energy sources in this inquiry-based workshop. Carolina's Inquiries in Science™ Environmental Series provide hands-on activities to make teaching challenging topics effortless. Free teacher materials and door prizes! **Continued in Session E14.**

**Presented by:** Carolina Biological Teaching Partner

**Grade Levels:** 9-12

**Room:** 2122

## D18 Using Seeds of Science; Roots of Reading Lessons to Promote Genuine Learning



Learn about a curriculum that combines the power of reading with true science content. Participate in a hands-on lesson from the Seeds of Science; Roots of Reading curriculum to see how it uses inquiry to lead students to discover concepts. Door prizes will be awarded.

**Presented by:** Scott Hudson, Delta Education

**Grade Levels:** PK-6

**Room:** 2123



Earth/Space Science



General Science



Life Science



Mathematics



Pedagogy



Physical Science



Pre-Service



Technology

### Session E (2:30 pm - 3:20 pm)

#### E1 Meeting the STEM Initiative with INFOhio: Science, Math and Technology Resources

INFOhio, our state school library network, provides support for state education initiatives that emphasize STEM and 21st century learning. Find out about excellent online resources including authoritative STEM reference materials for students, and collaboration and professional development opportunities for teachers through INFOhio and Internet2.

**Presented by:** Paula Nespeca Deal, INFOhio

**Grade Levels:** PK-12, Undergraduate, Faculty/Administrator

**Room:** Auditorium

#### E2 The Importance of Play in Early Childhood Science Education

This session presents strategies to promote learning science through play in early childhood environments. Learn how to plan playful, science-related learning experiences inside and outside the classroom and how to expand children's conceptual understanding as opportunities arise during free play. **Continued from Session D2.**

**Presented by:** Rick Worch, Bowling Green State University

**Grade Levels:** PK-3

**Room:** 1106

#### E3 Race to the Future: Integrating 21st Century Skills into Science and Mathematics

##### Instruction (LIMIT 20)

This exciting activity is modeled after the reality television show, The Amazing Race, and exemplifies how 21st century skills can be incorporated into core subject instruction as means to enhance student engagement. **Continued from Session D3.**

**Presented by:** Emilio Duran, Bowling Green State University

**Grade Levels:** 9-12, Undergraduate

**Room:** 3123

#### E4 Balloon Ball Bounce and Other Fun Inquiry Lesson Plans

Join us and make a bouncing ball from balloons! Learn how this hands-on activity can be used in your classroom as an inquiry-based lesson. View free, online resources from the Akron Global Polymer Academy. Finally, play with other polymers (rubber, plastic, film, fiber, adhesives) and learn about these fascinating materials. **Continued from Session D4.**

**Presented by:** Carin Helfer, The University of Akron

**Grade Levels:** 4-8

**Room:** 2100



## E5 Making Technology Work for you In the Science Classroom



Ways to incorporate 21st century skills into your science classroom without feeling overwhelmed. Improving communication and engagement with students. Creative ideas to use in your classroom to engage your students in inquiry, collaboration, and authentic assessment.

**Presented by:** Kathy Laney, Hicksville Schools

**Grade Levels:** 7-12

**Room:** 2103

## E6 Games and Activities for the Early Childhood Classroom (LIMIT 25)



This is a make it/take it presentation in which you will prepare several items that can be used with your students next week.

**Presented by:** Pamela Van Mooy, Bowling Green State University

**Grade Levels:** PK-3

**Room:** 2109

## E7 Individual Differences: Not Just the Math and Science Students. What About the Teachers and Professors?



Follow-up to session presented last year. Focus will be 391-person study on visualization and processing speed differences. Participants were undergraduate and graduate students at Owens Community College and BGSU. Members of audience will be recruited to partake in on-line study of math and science students, teachers, and professors.

**Presented by:** Richard Oldrieve, Bowling Green State University

**Grade Levels:** PK-12, Undergraduate, Faculty/Administrator

**Room:** 2110

## E8 Walking Through Scientific Processes and Other Uses for Student Bodies



Move your desks aside and create room for walking, acting, dancing, and other ways to demonstrate atoms, molecules, how they combine, and the processes in which they are involved. Use conga lines for types of waves and wavelengths. Processes like photosynthesis, protein synthesis, and mitosis are better understood by "going through the motions." **Repeated in Session D10.**

**Presented by:** Marya Czech, Lourdes College

**Grade Levels:** 4-10

**Room:** 2111



## E9 Foldables: 3-D Interactive Graphic Organizers



Come join the fun using Dinah Zike's Foldables. Foldables are three-dimensional interactive graphic organizers that are used as study organizers for daily work, note-taking activities, student-directed projects, and forms of alternative assessments. Sign up for this interactive session as you learn to design and fold each type of Foldable. **Continued from Session D11.**

**Presented by:** Cherie Hunter, Monroe County Intermediate School District

**Grade Levels:** K-8

**Room:** 2113

## E10 Science Notebooks



Strategies will be presented to utilize science notebooks effectively in the classroom. During the presentation, teachers will engage in an inquiry-based activity highlighting a Science & Technology indicator and develop a science notebook by implementing the information acquired. **Continued from Session D12.**

**Presented by:** Cheryl Pilatowski, Toledo Public Schools  
Julie Campbell, Toledo Public Schools

**Grade Levels:** PK-8

**Room:** 2115

## E11 Locally Focused Modules: Science Teachers, Science Students, and Scientists Collaborating for Understanding



TPS teachers were aligned with UT scientists to collaborate during science units with local focuses and videotaped to create modules. Included were Q & A discussions between the TPS teachers and the UT scientists as well as Q & A discussions between the TPS students and the UT scientists.

**Presented by:** Andrea Milner, Adrian College  
Kimberly Lemon, Adrian College

**Grade Levels:** 4-12

**Room:** 2117

## E12 The Ohio Junior Science and Humanities Symposium: A Program to Encourage and Recognize Student Achievement in the Sciences, Mathematics, and Engineering at the High School Level



This session will acquaint high school and junior high math and science teachers with the Ohio JSHS, a program designed to promote research in the sciences at the high school level and to recognize the students' accomplishments. Techniques to follow in preparing an abstract, writing a research paper, and making a presentation will be discussed.

**Presented by:** Emilio Duran, Bowling Green State University  
Hans Glandorff, Bowling Green City Schools  
Iris Szlagowski, Bowling Green State University

**Grade Levels:** 7-12

**Room:** 2118



## VENDOR SESSIONS

**E13 Stratologica-The Learning Is in the Layers**

Learn how to connect you students to the world around them. From traditional 2D maps, to 3D globe and world views, Nystrom, partnering with Google Earth, provides a web-based resource for making your classroom a 21st century learning environment. Designed for use with interactive white Boards, projectors, and computers.

**Presented by:** Trevor Walsh, Nystrom Social Studies

**Grade Levels:** PK-12, Undergraduate, Faculty/Administrator

**Room:** 2121

**E14 Need Energy in Your Environmental Classes? Learn about Carolina's NEW Inquiries in Science™ Environmental Series**

Looking for relevant, exciting lab activities for environmental science? Investigate climate change and explore alternative energy sources in this inquiry-based workshop. Carolina's Inquiries in Science™ Environmental Series provide hands-on activities to make teaching challenging topics effortless. Free teacher materials and door prizes! **Continued from Session D17.**

**Presented by:** Carolina Biological Teaching Partner

**Grade Levels:** 9-12

**Room:** 2122

**E15 Science Investigations: Students, Notebooks, and the Power of Inquiry**

Interrogate suspects, search for clues, and make your case with science notebooks. Discover how effective use of notebooks can move your class from boring to exploring. Session explores how to scaffold a criminal case as your students apply concepts they learned. Features a lesson from the STC PROGRAM unit Microworlds.

**Presented by:** Jack Ashton, Carolina Biological

**Grade Levels:** 4-8

**Room:** 2123



# Presenters

## Keynote Speaker

**Dr. Andy Jorgensen**, Associate Professor of Chemistry & Director of General Chemistry, University of Toledo

## Session Presenters

**Fred Andres**, Bowling Green State University

**Jack Ashton**, Carolina Biological

**Sharon Bachman**, Hughes STEM High School

**Cynthia Baum**, BGSU Child Development Center

**Debra Bercher**, Lourdes College

**Amy Biggs**, Mount Vernon Nazarene University

**Mike Bilik**, SDG Creations, Ltd

**Kristi Borchardt**, Bowling Green State University

**Angie Bucher**, Sylvania Schools

**Anne Bullerjahn**, Owens Community College

**Jacob Burgoon**, Bowling Green State University

**Linda Calcamuggio**, The Toledo Zoo

**Eric Calvert**, Bowling Green State University

**Julie Campbell**, Toledo Public Schools

**Alli Clausius**, Timberstone Junior High School

**Marya Czech**, Lourdes College

**Jon Darkow**, Seneca East High School

**Dawn Davis**, Mount Vernon Nazarene University

**Paula Nespeca Deal**, INFOhio

**Renee deValpine**, WGTE Educational Resource Center

**Bhakti Dixit**, Timberstone Junior High School

**Marilyn DuFour**, Rain Garden Initiative of Toledo

**Emilio Duran**, Bowling Green State University

**Sloan Eberly**, Imagination Station

**Melissa Askren Edgehouse**, Mount Union College

**Melanie Fisher**, Willoughby-Eastlake City Schools

**Natalie Fisher**, Mentor Exempted Village Schools

**Lindsay Friel**, Groveport Madison Local Schools

**Hans Glandorff**, Bowling Green City Schools

**Jeanne Gogolski**, Ohio Oil & Gas Energy Education Program

**Steven Gordon**, The Ohio State University

**Anjali Gray**, Lourdes College

**Jodi Haney**, Bowling Green State University

**Larry Hatch**, Bowling Green State University

**Raymond Heitger**, Bowling Green State University

**Carin Helfer**, The University of Akron

**Terry Herman**, Bowling Green State University

**Kay Hoane**, Mother Hubbard's Learning Cupboard

**Tim Holcombe**, Oregon City Schools

**Jule Horn**, Lourdes College

**Katie Hsieh**, Timberstone Junior High School

**Jason Hubbard**, Perrysburg Schools

**Scott Hudson**, Delta Education

**Cherie Hunter**, Monroe County Intermediate School District

**Christina Imen**, Sylvania Schools

**Chuck Jaco**, Penta Career Center

**Stacey Kessler**, Washington Local Schools

**Todd Keylock**, Bowling Green State University

**Sarah Kijowski**, TEAMS Teacher Participant

**Katie Kistler**, Springfield Local Schools

**Michelle Leow Klinger**, Bowling Green State University

**Jamie Kochensparger**, Lucas Soil & Water Conservation District

## *Presenters cont.*

**Robyne Kramp**, Bowling Green City Schools

**Mickey Krueger**, Timberstone Junior High School

**Kathy Laney**, Hicksville Schools

**Kimberly Lemon**, Adrian College

**Lan Li**, Bowling Green State University

**Lyndsey Manzo**, Ohio Sea Grant

**Julie McIntosh**, The University of Findlay

**David Meel**, Bowling Green State University

**W. Robert Midden**, Bowling Green State University

**Jacquelyne Miksanek**, Timberstone Junior High School

**Zach Miller**, Mount Vernon Nazarene University

**Andrea Milner**, Adrian College

**Lisa Morse**, Lucas County Educational Service Center

**Jane Music**, Penta Career Center

**Maheen Nadeem**, Timberstone Junior High School

**Rini Ng**, Timberstone Junior High School

**Adriana Noritz**, Timberstone Junior High School

**Heather Norris**, Toledo Area Metroparks

**Richard Oldrieve**, Bowling Green State University

**Charlene Patten**, WGTE Educational Resource Center

**Susan Peet**, Bowling Green State University

**James Perry**, Owens Community College

**Lynnette Pewett**, Challenger Learning Center of Lucas County

**Cheryl Pilatowski**, Toledo Public Schools

**Jenna Pollock**, Bowling Green State University

**Heather Miller Porter**, Mount Vernon Nazarene University

**Sarah Proudfoot**, Washington Local Schools

**Carrie Rathsack**, Rossford Schools

**Naveen Rehman**, Timberstone Junior High School

**Kristie Reighard**, Penta Career Center

**Virginia Rhodes**, Hughes STEM High School

**Gwynne Rife**, The University of Findlay

**Jeanine Roberts**, Toledo Botanical Garden

**Bob Rumschlag**, SDG Creations, Ltd

**Adam Russell**, Maumee Schools

**Joe Sarnes**, Perrysburg Schools

**Dan Schellhas**, Bowling Green State University

**Reed Steele**, Challenger Learning Center of Lucas County

**Beryl Stemen**, Owens Community College

**Janet Struble**, The University of Toledo

**Brent Swartzmiller**, Perrysburg Schools

**Iris Szelagowski**, Bowling Green State University

**Diane Thurber**, Toledo Botanical Garden

**Eileen Underwood**, Bowling Green State University

**Pamela Van Mooy**, Bowling Green State University

**Trevor Walsh**, Nystrom Social Studies

**Kristine Walter**, Springfield Local Schools

**Carol Warkentien**, Ohio Oil & Gas Energy Education Program

**Stephanie Wendt**, Mother Hubbard's Learning Cupboard

**Emily Westphal**, Timberstone Junior High School

**Audra Wiles**, Bowling Green State University

**Elizabeth Wise**, Lourdes College

**Rick Worch**, Bowling Green State University

**Dan Wyandt**, Penta Career Center

**Jean Zorko**, Stark State College of Technology

**James Zubricky**, The University of Toledo

# Vendors

## **A Whale of a Tale**

6734 Worth Ave.  
Sylvania, OH 43560  
(419) 461-2665

**Marcia Kaplan**  
[marciajkaplan@hotmail.com](mailto:marciajkaplan@hotmail.com)  
[www.awhaleofatale.com](http://www.awhaleofatale.com)

## **Carolina Biological**

2700 York Road  
Burlington, NC 27215  
(502) 381-5680

**Lisa Dunn**  
[lisa.dunn@carolina.com](mailto:lisa.dunn@carolina.com)  
<http://www.carolina.com>

## **Challenger Learning Center of Lucas County**

4955 Seaman Road  
Oregon, OH 43619  
(419) 724-5490

**Reed Steele**  
[lcsc\\_rs@nwoca.org](mailto:lcsc_rs@nwoca.org)  
<http://challengerlc.org>

## **Delta Education**

10797 Cypresswood Dr.  
Independence, KY 41051  
(859) 322-7227

**Kevin Stinson**  
[kstinson@delta-edu.com](mailto:kstinson@delta-edu.com)  
[www.fossworks.com](http://www.fossworks.com)

## **Imagination Station**

1 Discovery Way  
Toledo, OH 43604  
(419) 244-2674

**Lisa Gardner**  
[gardner@imaginationstationtoledo.org](mailto:gardner@imaginationstationtoledo.org)  
<http://imaginationstationtoledo.org>

## **Lourdes College**

6832 Convent Blvd.  
Sylvania, OH 43560  
(419) 517-8897

**Laura Megeath**  
[planetarium@lourdes.edu](mailto:planetarium@lourdes.edu)  
[www.lourdes.edu](http://www.lourdes.edu)

## **Mother Hubbard's Learning Cupboard**

219 Broadway  
Findlay, OH 45840  
(419) 425-3276

**Kay Hoane**  
[motherhubbardlc@aol.com](mailto:motherhubbardlc@aol.com)

## **Nystrom Social Studies**

452 Haley Dr.  
Oregon, OH 43616  
(419) 304-4008

**Trevor Walsh**  
[tmwalsh@herffjones.com](mailto:tmwalsh@herffjones.com)  
[www.nystromnet.com](http://www.nystromnet.com)

## **OSU-F.T. Stone Laboratory**

Area 100 Research Center  
1314 Kinnear Rd.  
Columbus, OH 43212  
(614) 247-6684

**Eugene Braig**  
[braig.1@osu.edu](mailto:braig.1@osu.edu)  
<http://stonelab.osu.edu>

## **Ohio Junior Science and Humanities Symposium (OJSHS)**

Bowling Green State University  
241 Math Science Bldg.  
Bowling Green, OH 43403

**Iris Szelagowski**  
[iriss@bgsu.edu](mailto:iriss@bgsu.edu)  
[www.ojshs.org](http://www.ojshs.org)

## **Ohio Oil & Gas Energy Education Program**

P.O. Box 187  
1718 Columbus Rd., SW  
Granville, OH 43023  
(740) 587-0410

**Aara Chapman**  
[carol@educationprojects.org](mailto:carol@educationprojects.org)  
[achapman@oogeeep.org](mailto:achapman@oogeeep.org)

## **Oregon Career & Technology Center**

2424 Seaman Street  
Toledo, OH 43605  
(419) 697-3450

**Sandra Stroshine**  
[ssstroshine@oregoncs.org](mailto:ssstroshine@oregoncs.org)  
[www.oregonctc.org](http://www.oregonctc.org)

## **Rain Garden Initiative of Toledo-Lucas County**

348 South Erie Street  
Toledo, OH 43604  
(419) 936-3759

**Katie Swartz**  
[kswartz@americanrivers.org](mailto:kswartz@americanrivers.org)  
<http://www.raingardeninitiative.org>

## **SDG Creations, Ltd representing Educaching GPS Based Curriculum**

304 Lacombe  
Maumee, OH 43537  
(567) 202-0035

**Bob Rumschlag**  
[director@sdg-creations.com](mailto:director@sdg-creations.com)  
<http://www.educaching.com/educaching.html>

## Vendors cont.

### SECO-Science Education Council of Ohio

2801 W. Bancroft St. MS 958  
Toledo, OH 43606  
(419) 530-4993

**Janet Struble**

**janet.struble@utoledo.edu**  
[www.seconline.org](http://www.seconline.org)

### Sauder Village

22611 St Rt 2  
Archbold, OH 43502  
(800) 590 9755

**Andrea Erbskorn**

**aerbskorn@saudervillage.org**  
[www.saudervillage.org](http://www.saudervillage.org)

### Science Engineering & Technology Gateway Ohio (SETGO)

304 Life Sciences  
Bowling Green State University  
Bowling Green, OH 43403  
(419) 372-4238

**Liz Ross**

**eaross@bgsu.edu**  
[www.bgsu.edu/setgo](http://www.bgsu.edu/setgo)

### Science and Math Education in ACTION

320B Math Science Building  
Bowling Green State University  
Bowling Green, OH 43403  
(419) 372-6562

**Erin Schwiebert**

**eschwie@bgsu.edu**  
[www.bgsu.edu/action](http://www.bgsu.edu/action)

### Sheridan Worldwide, Inc.

8311 Green Meadows Dr. North  
Lewis Center, OH 43035  
(800) 433-6259

**Dave Dobos**

**dave@wwise.com**  
<http://classroomgoodies.com>

### Texas Instruments

5288 Mallet Club Dr  
Dayton, OH 45439  
(937) 558-1158

**Randy Miller**

**rmiller@ti.com**  
<http://www.ti.com>

### The Toledo Zoo

2 Hippo Way  
Toledo, OH 43614  
(419) 385-572

**Linda Calcamuggio**

**lindacal@toledo zoo.org**  
<http://www.toledo zoo.org>

### The University of Toledo

2801 W. Bancroft St.  
MS 602  
Toledo, OH 43606  
(419) 530-2566

**James Zubricky**

**james.zubricky@utoledo.edu**  
[www.utoledo.edu](http://www.utoledo.edu)

### Toledo Botanical Garden

5403 Elmer Dr.  
Toledo, OH 43615  
(419) 536-5589

**Diane Thurber**

**education@toledogarden.org**  
<http://www.toledogarden.org>

### WGTE Educational Resource Center

1270 S. Detroit Ave.  
Toledo, OH 43614  
(419) 380-4634

**Renee deValpine**

**renee\_devalpine@wgte.org**  
<http://www.wgte.org/education>

### Wood County Park District

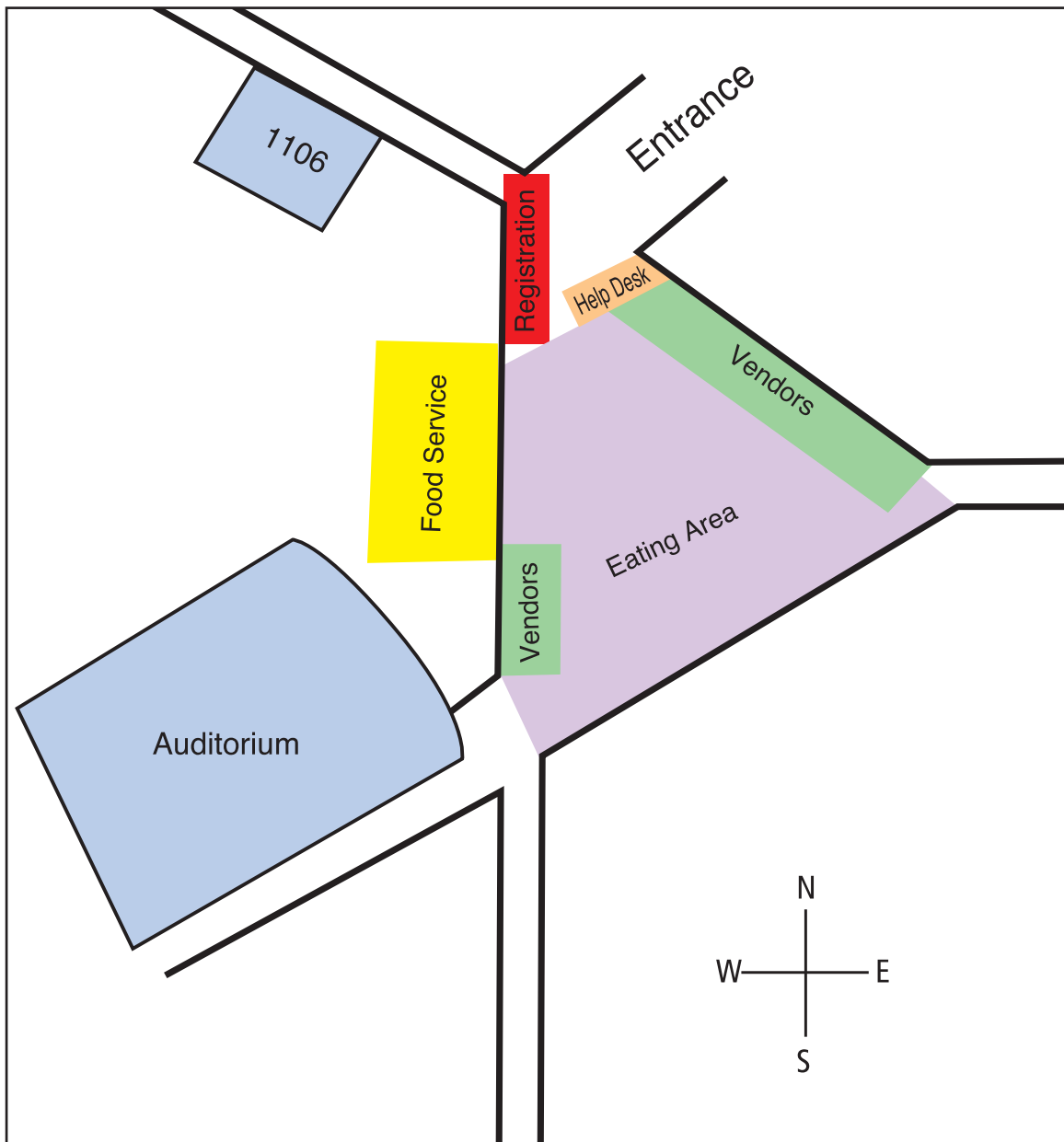
Chris Smalley  
30730 Oregon Road  
Perrysburg, OH 43551  
(419) 661-5113

**Chris Smalley**

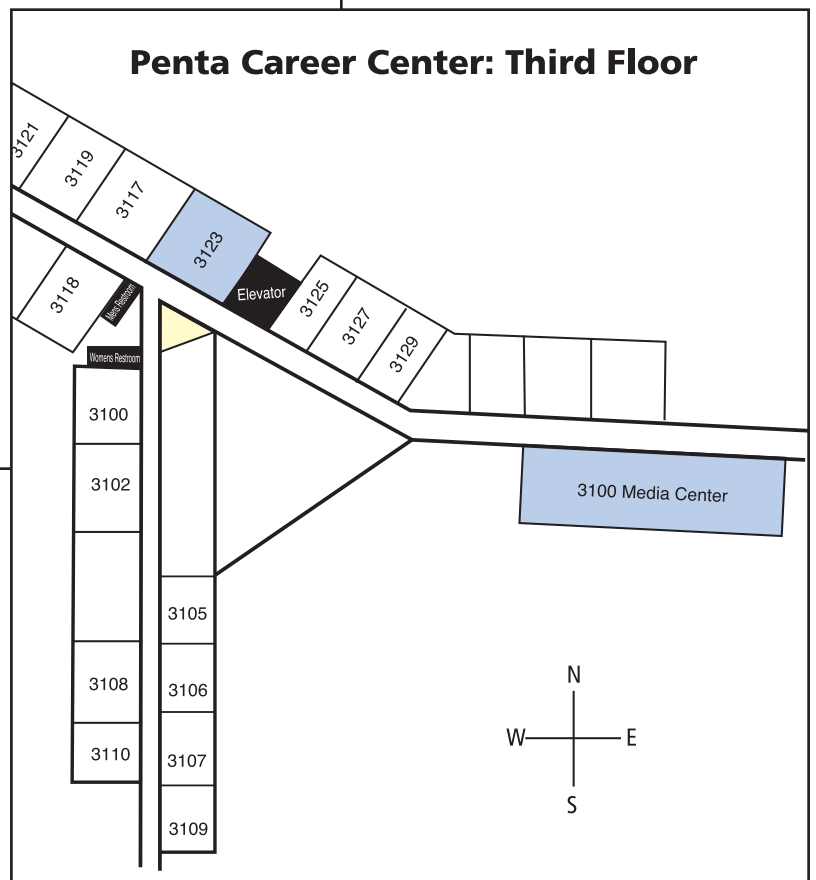
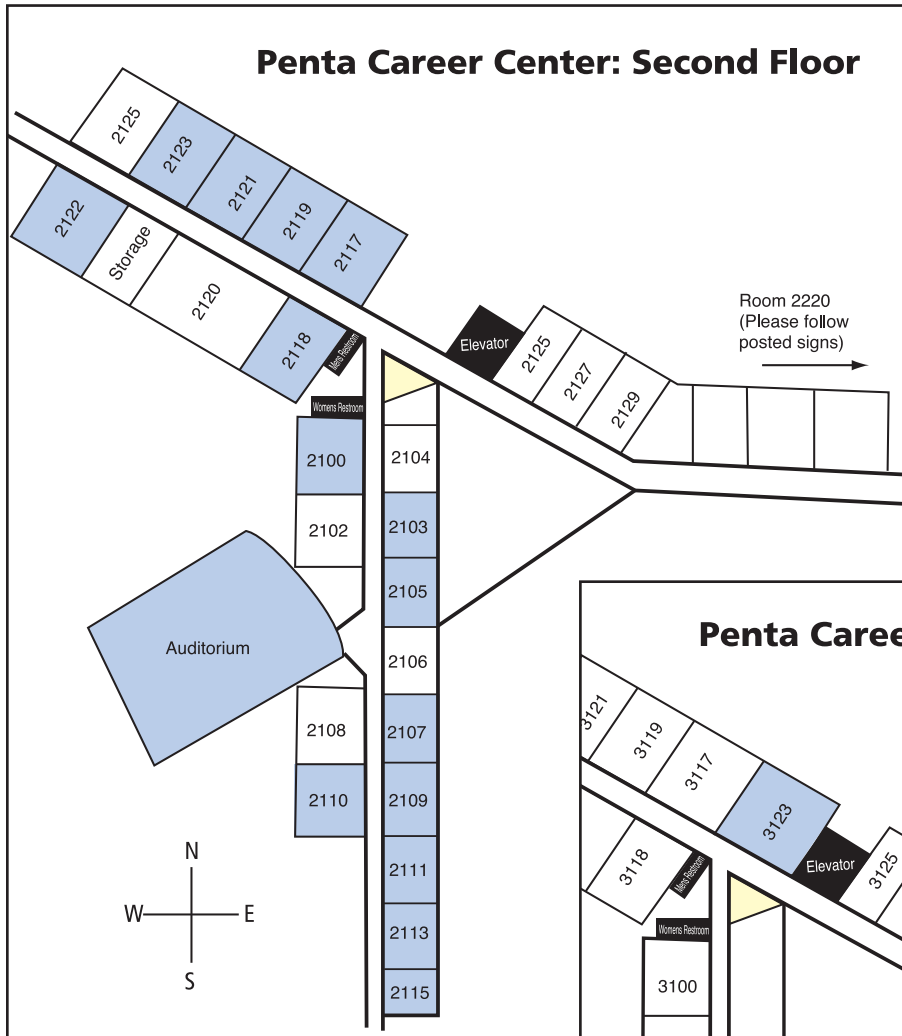
**csmalley@wcparks.org**  
<http://www.woodcountyparkdistrict.org>

# *Penta Career Center Building Maps*

## **Penta Career Center: First Floor**



# Penta Career Center Building Maps cont.



# *Acknowledgements*

We wish to acknowledge the following individuals who worked so hard to make this Symposium a success:

**Bowling Green State University:** Emilio Duran  
Bob Midden  
Jessica Belcher  
Michelle Klinger  
Jenna Pollock

**Symposium Coordinator:** Amy Boros  
**Creative Design Director:** Lisa Addis  
**Administrative Assistant:** Nancy Hoose



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SECO-Science Education Council of Ohio

Texas Instruments

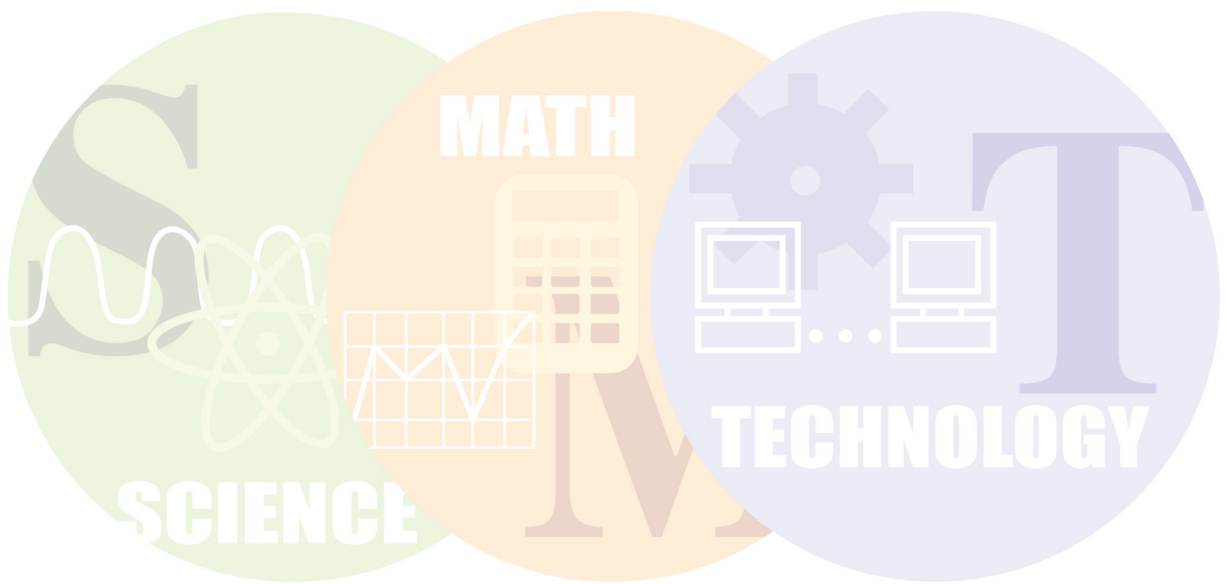
The Toledo Zoo

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# *Notes*



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