

# Concurrent Sessions and Workshops

Th1

Thursday Session 1  
8:30 - 9:25 a.m.

## **Issues for New and Emerging STEM Schools**

Room: Salon A

*Dennis Lundgren, Berrien County Math Science Center, MI; Jay Thomas, Aurora University, IL; Cheryl Lindeman, Central Virginia Governor's School*

This session is a presentation and dialog revolving around issues of new and emerging NCSSSMST schools. Among the topics for discussion: school models, student selection, governance, curriculum, staffing, and sustainability. This session will draw on the experience of NCSSSMST leaders and the lessons learned by recent new and emerging schools.

## **Tapping the Brain's Funny Bone: Classroom Applications**

Room: Salon B

*Debra Blenis, Florida Institute of Technology*

In our professional roles as teachers, advisors, coaches, and mentors, we can become staunch, serious, and stressed. We can forget to laugh. It's time to put humor back into the classroom. It's the best thing we can do for our students and ourselves. This session will review the research concerning the association between humor and learning.

## **NCSSM Goes Online!!**

Room: Salon C

*Gerald Boarman and Darlene Haught, North Carolina School of Science and Mathematics*

NCSSM has developed a unique online program. This session will explain the why, what, how, and who of the three phases designed to expand NCSSM's rigorous STEM experience beyond the four corners of our residential campus into a blended virtual and face-to-face environment.

## **Potter, Plato and Aristotle: Teaching the Fundamentals of Western Philosophy**

Room: Salon D

*Diane Gerard, Alabama School of Mathematics and Science*

How do you get today's students that grew up with Harry Potter and Lord of the Rings interested in Plato and Aristotle? Join me to learn about an entertaining and effective way to teach the fundamentals of Western philosophy by demonstrating to your students that there is more to their favorite books and movies than talking animals and special effects.

## **FACES: An Investigation of Facial Reconstruction to Establish Human Identity**

Room: Salon E

*John Goudie, Kalamazoo Area Mathematics and Science Center, MI*

The integration of forensic science into biomedical science courses is apropos due to interest in crime scene investigation. Many concepts and skills in science are connected by such investigations. Facial reconstruction and other forensic activities will be discussed and their integration into the classroom explained. Handouts will be available on facial reconstruction.

## **Green Schools: Educating the Sustainability Native**

Room: Salon F

*Rachel Gutter and Julie Feder, U.S. Green Building Council*

The U.S. Green Building Council (USGBC) supports the greening of school facilities and the integration of sustainability projects throughout K-12 learning communities. Discover how green buildings can provide a unique opportunity for project-based learning and the education of true sustainability natives – students fluent in the language of green.

## **Bring Math and Science to Life through Engineering and Technology**

Room: Salon G

*Rosemary Aguilar, Southern Methodist University, TX*

Learn how to bring math and science to life in the classroom by linking these concepts to engineering and technology. Preview the curriculum and see a demonstration of lab activities centered on engineering topics. Hear about what you can do to fuel a thirst for STEM in schools and institutions.

## **To Protect and Search: Digitizing Student Research for the Web**

Room: Jackson

*Alaine Martaus, Arkansas School for Mathematics, Sciences, and the Arts*

This session explores the whys and hows of digitizing student research for posterity and ease of access. We will focus specifically on the benefits of digitization from both archival and reference perspectives, as well as on the best methods for creating an online archive of student work.

## **Dragging Lee and Grant into the Blogosphere: Using Web 2.0 Tools for Primary Source Document Research and Writing**

Room: Jefferson

*Daniel Moix and Donna Hutchison, Arkansas School for Mathematics, Sciences, and the Arts*

Making American history come alive for students can be daunting. Teachers often do not have the time or energy to create engaging, research-based alternatives for their students. ASMSA teachers will share an answer: role-playing Civil War blogs.

## **The Stem Cell Research Program at BCA**

Room: Lee

*Robert Pergolozzi, Bergen County Academies, NJ*

A novel program at the Bergen Academies teaches basic biological concepts to gifted students by asking them to perform sophisticated, individualized research projects. We will discuss the issues and obstacles that we faced in the design and implementation of this plan, and the status of the program after 36 months of practice.

# Concurrent Sessions and Workshops

Th2

**Thursday Session 2**  
**9:35-10:30 a.m.**

## **Panel: From AP to PC - Changing the Way STEM is Taught**

Room: Salon A

*Max McGee, Purva Rushi, David Devol, Michelle Kolar, Diane Hinterlong, Lawrence Branson, Tracy Miller, Illinois Mathematics and Science Academy*

IMSA chemistry, physics, and engineering teachers, outreach professionals, and administrators will share our methods of engaging students in STEM, including: transforming science teaching to be more lab-based and concept-driven instead of AP-driven, exporting this teaching throughout Illinois, engaging students in alternative energy research, and more!

## **Developing Specialized Courses for the NCSSM Online Program**

Room: Salon B

*Anna DeConti and Christopher Thomas, North Carolina School of Science and Mathematics*

The NCSSM Online Program is developing a curriculum for high potential students that meet standards for collaboration, engagement, and in-depth exploration of advanced topics. This session covers instructional technology, support systems, interactivity, and content/design of math and geology online courses.

## **Youth Policy Summit - Blending Science and Policy**

Room: Salon C

*Annemarie Fussell, Keystone Science School, CO and Jeremy Kranowitz, Keystone Center, CO*

This session will outline the history of the KSS-NCSSSMST Youth Policy Summits and will introduce the staff of this unique collaborative. 2009 YPS opportunities will be outlined and time for Q&A included. Participants will complete a sample of activities in mediation and policy to ensure an interactive session.

## **Teaching DIRT - Digital Information Research Technology**

Room: Salon D

*Diane Futrelle, North Carolina School of Science and Mathematics*

DIRT is a trimester long, interdisciplinary course that directs students through the stages of becoming fluent with digital information technology. This presentation will focus on how we incorporate 21st-century learning skills to help prepare students to conduct information research and to manage digital information.

## **A Whole New Mind for a Whole New School**

Room: Salon F

*Corey Alderice and Tim Gott, The Gatton Academy of Mathematics and Science in Kentucky*

Daniel Pink postulates in *A Whole New Mind* that, to create thinkers who both process information and see greater connections, right and left-brain learning must merge. Highlighting applications of Pink's theories, this session discusses developing students as they explore STEM and humanities, classroom and residential life, and more while embracing advanced learning opportunities.

## **Generating Knowledge and Passion for Mathematics through Modeling**

Room: Salon G

*Richard Noble, North Carolina School of Science and Mathematics*

NCSSSM math courses are designed to develop each student as a mathematician - a person who approaches problems with self-confidence, an extensive set of tools, and creativity. We use modeling to provide for student involvement in the learning process, include use of technology to enhance student understanding, and demonstrate the diverse fields and applications in which mathematics is used. This presentation offers an illustrative example by using a calculus investigation.

## **Connecting Through NCSSSMST.ORG**

Room: Jackson

*Ron Laugen, NCSSSMST, and Mark Ensign, Neumont University, UT*

NCSSSMST.org is your link to the Consortium. Find out about our new section: Connecting Consortium Professionals, developed with Neumont University. Check out the Forum, Curriculum Center, Gallery, and Professional Conferences. What would YOU like to share or find in the site?

## **Ciencias en Español: Using Content to Teach and Reinforce Language Communication Skills**

Room: Jefferson

*Aracelys Rios and Willa Shultz, Illinois Mathematics and Science Academy*

The World Languages curricula at IMSA are designed using concepts and topics so that students are immersed in the target language. One example in Spanish 3 is an environmental unit in which students conduct, write up, and discuss experiments – combining their science with their Spanish language skills.

## **Space Technology to Enrich the Humanities**

Room: Lee

*Ronny Risinger, Liberal Arts and Science Academy of Austin, TX*

Learn how to use Amateur Radio to enrich your Humanities curriculum. This tested technology allows you to download weather satellite images or talk to the Space Station. What you do in between is limited only by your imagination.

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## **Where There's A Brain, There's A Way: Enriching the Brains of STEM Learners**

Room: Salon E

*John Almarode, University of Virginia*

Take an action-packed look at how to positively change the brain in STEM classrooms! This two-session workshop will link current research on enriched environments and the malleability of the brain with educational practice. Each principle will be modeled by the presenter and experienced by the participants.

# W2-3

**Thursday Workshop 2 & 3  
9:35-11:35 a.m.**

# Concurrent Sessions and Workshops

**Th3**  
**Thursday Session 3**  
**10:40-11:35 a.m.**

## **How Can Your School Benefit from the College Board's Diversity Opportunities?**

Room: Salon A

*Tom Rudin, The College Board*

Come learn from Tom Rudin, Senior Vice President for Advocacy at The College Board. He will discuss the College Board's advocacy agenda, which focuses on increasing the college readiness and college success of many more of our nation's students, and also share the new AP courses that are being designed to help bridge the gap with STEM programs and careers for underrepresented populations. Also, he will share the work they are doing with NSF. There will be time for discussion and opportunities to continue conversations during lunch.

## **The Drexel Summer Mentorship: Program, Faculty, Success Stories**

Room: Salon B

*Amy Campbell, Selcuk Guceri, Anthony Lowman, Guiseppe Palmese, Amy Peterson, Justin Warren, Drexel University, PA*

The Summer Mentorship program at Drexel is a dynamic, three-week residential research experience that provides high school students with a unique opportunity to work on an individualized research project. In this roundtable discussion, led by the Director, you will hear why our program has been successful in recruiting the best and the brightest from NCSSSMST schools. You will be able to ask mentorship professors what they are looking for in their students and how teachers and administrators can prepare students for research in college.

## **Applying Epidemiologic Concepts in the High School Classroom**

Room: Salon C

*Daniel Figueras, Bronx High School of Science, NY*

Find out how students apply epidemiologic concepts to study health issues of their choosing, make use of public data and statistical analyses, and create a feasible epidemiologic study.

## **Lessons Learned in the First Two Years**

Room: Salon D

*Tim Gott, Gatton Academy of Mathematics and Science in Kentucky*

This session will focus on the successes and challenges of starting a new residential program. Content will focus on curriculum and research, social/emotional dynamics, leadership development, and infrastructure.

## **An Introduction to Axiomatic Geometry: Exposing Students to Advanced Mathematics at an Early Age**

Room: Salon F

*William Rose, Montgomery Blair Magnet Program, Montgomery Blair HS, MD*

Session attendees will learn how teaching a unit on axiomatic geometry can enrich students' understanding of modern mathematics and the axiomatic method. A description of the curriculum and its successful application in the Montgomery Blair Magnet Program will be presented.

## **World Languages and Classics for the STEM Student**

Room: Salon G

*Lisa Rocchio and Francisco Uceda, Bronx High School of Science, NY*

We will share strategies to use in the language classroom designed specifically for students like ours, discuss student work designed using technology, and present ideas for creating new courses of study designed for the STEM student.

## **Multi-User Virtual Environments: Do We Need An Educational Second Life?**

Room: Jackson

*Jim Gerry and Scott Swanson, Illinois Mathematics and Science Academy*

Multi-user virtual environments (MUVES) have received lots of press and notoriety. Do we care in education? Why? Explore what they are with us and learn why this may be the change we've all been waiting for: the first truly constructivist, world-building environment in which we can shape our students' futures.

## **Science Policy on the Macro and Micro Level: Applying Science to Change the World**

Room: Jefferson

*Melissa Schoeplein, Amanda Hurowitz, and Hadan Kauffman, Thomas Jefferson High School for Science and Technology, VA*

This workshop session will focus on understanding the intersection of science and public policy by highlighting two applied science programs at TJHSST: the Solar Panel Initiative and the school's new Science Policy Program. Both programs highlight ways that STEM can be applied to solve real world problems and have an impact on greater society.

## **New Media in the Classroom: Creating a Technological Platform to Launch Student Work**

Room: Lee

*Kendra Young and Brandi Richey, Liberal Arts and Science Academy of Austin, TX*

Find out how to LASA simultaneously teaches students communication, design, technology, and media literacy skills. We will demonstrate how teachers can use Creative Suite 3 to design innovative student publications and how to use blogging to motivate students to cultivate and communicate their ideas.

# Concurrent Sessions and Workshops

Th4

Thursday Session 4  
1:55-2:50 p.m.

## **Florida Governor's School Pilot Summer Academy for Gifted Students: What We Learned**

Room: Salon A

*Debra Blenis, Florida Institute of Technology*

The FGS 2008 Summer Pilot Academy for Gifted Students was held at the Kennedy Space Center. Join with us to discuss student perceptions of the STEM curriculum, their instructors, their social experiences, and the overall value of summer programs.

## **Minority Student Success: The Role of Schools Like Ours**

Room: Salon B

*Brenda Earhart, Kalamazoo Area Mathematics and Science Center, MI; Crystal Bonds, Brooklyn Technical High School, NY; Letita Mason, North Carolina School of Science and Mathematics; Melissa Schoeplein, Thomas Jefferson High School for Science and Technology, VA*

Several NCSSSMST Board members will share their schools' implementation of successful outreach programs in STEM education focusing on underrepresented middle school and high students as a way of recruitment and retention as they matriculate into our programs.

## **Two of a Kind: Architecture and Product Design at HSMSE**

Room: Salon C

*Thomas Henning and Ernesto Pedroso, High School for Math, Science, and Engineering at The City College of New York*

This session presents two electives that are offered to seniors at HSMSE. These courses, one dealing with large-scale design and the other small, share many common lessons (about a third of the total) but differ in many ways as well. Both emphasize hands-on experiences over the use of computer tools.

## **Scientific Inquiry in AP Chemistry for the Inquiry-Challenged**

Room: Salon D

*Diana Kennen, Rockdale Magnet School for Science and Technology, GA*

This session will provide suggestions for quick and easy methods of adapting existing chemistry laboratory activities in order to incorporate a scientific inquiry component. Topics include: barriers to scientific inquiry, deductive and inductive laboratory activities, simple first steps, and laboratory report formatting options.

## **Teaching the Scientific Method in the Social Science Classroom**

Room: Salon E

*Zach Lynn, Bronx High School of Science, NY*

Students in STEM schools typically have a strong interest in the sciences. This session will focus on ways that lessons in political science, psychology, and economics can reinforce and build upon students' appreciation of the scientific method.

## **Prove It: How an Introduction to Formal Logic in the Geometry Classroom Can Improve Student Proof Technique**

Room: Salon F

William Rose, Montgomery Blair Magnet Program, Montgomery Blair HS

Learn how the insertion of a three-week unit on advanced logic into a high school geometry course can greatly enhance students' ability to prove challenging theorems independently. A description of the curriculum and its successful application in the Montgomery Blair Magnet Program will be presented.

## **Affiliate Roundtable**

Room: Salon G

*Judi Marino, Florida Institute of Technology*

This session encourages lively discussion among college representatives, other affiliate members, and teachers, counselors and administrators. It is designed for those interested in discussing topics that reflect students' choices, opportunities and challenges in their progression to higher education.

## **Cogito.org: An Online Community for Gifted STEM Middle and High School Students**

Room: Jackson

*Kristi Birch, Johns Hopkins University Center for Talented Youth, MD*

Cogito.org provides gifted middle and high school students with a virtual community and connects them with working scientists and mathematicians through online discussions, interviews, and more. Find how Cogito works, explore its various features, and learn about membership.

## **Post-AP Genetics: An Advanced Elective Emphasizing Hands-on Laboratory Investigations**

Room: Lee

*Allison Wheeler and Jean Donahue, Bronx High School of Science, NY*

Since students are taking AP classes earlier in their academic careers, many desire advanced science electives. This session will describe a post-AP genetics elective for which AP Biology is a prerequisite. Hands-on laboratory investigations will be highlighted, including an open-ended *Drosophila* mating experiment.

## **Great Minds Think Alike: Artist and Scientist**

Room: Madison

*Suzanne Owens, Lori Snyder, Kristina Gillmeister, Joseph Thompson, and James Dell, Anne Arundel STEM Magnet High School at North County High School, MD*

This session highlights an exciting, unique curriculum developed by art and science teachers to challenge and engage STEM students in the creation of visual artworks while embedding concepts and tools from science and technology. Participants will view student artworks and artist statements and receive ideas for curriculum implementation.

# Concurrent Sessions and Workshops

W4-5

Thursday Workshop 4-5  
1:55-3:55 p.m.

## **The Role of Psychology in Developing Talent**

Room: Jefferson

*Rena Subotnik, American Psychological Association, DC; Ron Laugen, NCSSSMST; Jay Thomas, Aurora University, IL*

Talent is a dynamic construct that develops over time. Part I of this double-session workshop will focus on factors that play important roles in different stages of talent development in academics and arts. What does it take to be an excellent candidate for a selective program, to be a star in that program, and to achieve and sustain a successful professional career? In Part II, the co-presenters will react and then there will be discussion of implications with attendees.

Th5

Thursday Session 5  
3:00-3:55 p.m.

## **The Death of PowerPoint?**

Room: Salon A

*Linda Cauley, Shenandoah Valley Governor's School, VA; John Almarode, University of Virginia*

Ever joke about "death by PowerPoint?" Presentation software can greatly enrich classroom environments but, according to recent research by John Medina, may actually inhibit student mastery. Preliminary research on student interactions using some of Medina's recommendations will be presented. Strategies for more effective use of instructional technology will be modeled.

## **Computer Science in High School, College, and Beyond**

Room: Salon B

*Jean Griffin, University of Pennsylvania*

We will discuss a variety of topics: the state of high school computer science education in the United States, ways to engage students in computer science, UPenn's service learning course (in which UPenn students earn credit for teaching high school students), myths and stereotypes, and career prospects.

## **Changing Mindsets: Framing and Bridging Science, Art and Humanities**

Room: Salon C

*Gary Luter, University of Tampa, FL*

In our university honors program you'll find extraordinary math students who are sublime musicians, nascent chemists performing Shakespeare, and marine science majors whose whale watching journals read like poetry. Find out how we explore and support the interconnectedness of the arts, humanities and sciences.

## **Growing Our Own - Great STEM Students Just Don't Happen**

Room: Salon D

*William Perkins and Rachel Morris, Missouri University of Science and Technology*

This session will show how the Missouri University of Science and Technology uses current data to identify the need for more nationwide STEM programs. We will discuss what the University is doing with pre-college summer programs to foster young student love for math and science. We'll also discuss Missouri's need for more out-of-state Consortium students to study STEM related fields.

## **Advanced Mathematical Techniques: A Hybrid STEM Course**

Room: Salon E

*Jonathan Osborne, Thomas Jefferson High School for Science and Technology, VA*

Find out about Advanced Mathematical Techniques, a course intended for students in their senior year immediately after a semester of multivariable calculus. AMT focuses on applications of mathematics in a variety of fields and brings in some of the topics that were neglected in the years-long preparation for the AP calculus exam.

## **Independent Studies in Computational Biology via Remote Conferencing Software**

Room: Salon F

*Randy Smith, The Center for Genome Dynamics, Jackson Laboratory, ME*

Want to introduce Computational Biology to high school students? The Center for Genome Dynamics at the Jackson Laboratory created "Independent Studies in Computational Biology" to address this issue, with successful implementation at The Maine School of Science and Mathematics and The North Carolina School of Science and Mathematics.

## **Affiliate Meeting**

Room: Salon G

*Judi Marino, Florida Institute of Technology*

This is a meeting for representatives from NCSSSMST Affiliates. All Affiliates attending the conference are urged to attend.

## **Supporting Student Success: A Program to Assist with Improving Retention and Identifying Potential Areas of Concern**

Room: Jackson

*Emile Shumate, Louisiana School for Math, Science, and the Arts and Darlena Jones, Educational Benchmarking*

Residential high schools face unique student success challenges. MAP-Works provides valuable student success information directly and quickly to students, academic advisors, residential directors, and other applicable faculty/staff. Learn how we used it to improve faculty/staff interactions with students and to identify at-risk students.

## **Rubric-Based Writing Program for American Studies and Core English Courses**

Room: Lee

*Virginia Wilson, North Carolina School of Science and Mathematics*

Students needing additional writing preparation take Intensive Writing before enrolling in our core Humanities courses. Students not attaining a minimal mastery average score on four American Studies papers take IW prior to their final core Humanities courses. Classroom activities for Intensive Writing and the NCSSM Diagnostic Writing Rubric will be discussed.