March 17, 2006 NCSSSMST Conference Presenters

Online Application System
F1 – 9:40-10:35
Co-Presenters:
Jamil Spain – North Carolina School of Science and Mathematics
Letita Mason – North Carolina School of Science and Mathematics
Michael Reidy – North Carolina School of Science and Mathematics
Online application and application processing system: a comprehensive toolset for admissions officers, IT departments and school administrators – a part of the NCSSM open source database suite.

Science Writing for Everyone
F1 – 9:40-10:35
Co-Presenters:
Cathy Colglazier – Thomas Jefferson High School for Science & Technology
Jennifer Seavey – Thomas Jefferson High School for Science & Technology
Learn how to instruct and inspire students to both use and write effectively about serious science. Using various media (newspapers, radio, magazines), contest carrots (Dupont Challenge, Young Naturalist), and teaching strategies (scaffolding, distribution lists, class publication), you'll get some tools to make science writing easy and fun for all students.

Science and Technology in the World of Foreign Languages
F1 – 9:40-10:35
Presenter:
Carter Vaden - Thomas Jefferson High School for Science & Technology
The world of science, math, and technology extends beyond the shores or our own land. Foreign Language teachers can help students take their love for the sciences into a wider world. Come explore ways of making the foreign language classroom especially exciting for our students of science, math, and technology.

Engaging Mathematics Problems for Consortium Students Who Are Not Planning to Be Engineers or Mathematicians
F1 – 9:40-10:35
Presenter:
Murray H. Siegel – South Carolina Governor's School for Science & Mathematics
Consortium students not planning careers in engineering or mathematics take calculus and, perhaps, statistics. There are many engaging problems drawn from number theory that can both engage these students and provide insight into the structure of mathematics. Palindromes, black holes, sum of cubes, Goldbach's conjecture and Fibonacci-like sequences are examples.

Teaching Genius in AP Physics
F1 – 9:40-10:35
Presenter:
John Dell - Thomas Jefferson High School for Science & Technology
Cognitive skills often associated with Genius are required to formulate and solve complex physics problems. This talk presents methods for helping gifted students learn to perform higher synthesis and to monitor their own problem solving process in the context of the Newtonian Mechanics course embedded in AP Physics-C.

Training, Attracting and Retaining the Chemical Engineers of the Future
F1 – 9:40-10:35
Presenter:
Maria E. Pozo de Fernandez – Florida Institute of Technology
Technology is always changing at a fast pace. To introduce changes into the engineering curriculum is not an easy task. This session will discuss some of the changes that chemical engineering programs had to adopt in order to keep up with new trends that emerging technologies require.

Freshman Research: A Model for High School & University Collaboration
F1 – 9:40-10:35
Co-Presenters:
Jill Beach – Rockdale Magnet School for Science & Technology
Amanda Dugan – Georgia Institute of Technology
This presentation will describe the process of teaching freshmen research and the roles that university students can perform in helping students complete research projects. The model of a five-year partnership in the Research I classroom with two Georgia Tech students assisting on a weekly basis will be highlighted.

REALMS: Real-Time Engagement in Active Learning of Math & Science
F1 – 9:40-10:35
Co-Presenters:
Mary Jo Parker – Academy for Science & Health – Conroe ISD
Cynthia McMahan – Academy for Science & Health – Conroe ISD
Matt Bond – Academy for Science & Health – Conroe ISD
Students involved in sequential math and science courses from 10^{th} through 12^{th} will be involved in real-time data collection in classroom and field study lab lessons. Labs will include teacher-generated as well as student-generated lab lessons. All lab lessons will incorporate electronic probes and sensors as data gathering devices and portable computing devices for analyzing software.

LTSP: Making a Case for Thin Client and Open Source Solutions in Public Schools
F1 – 9:40-10:35
Co-Presenters:
Josh Strong - Thomas Jefferson High School for Science & Technology
Richard Washer - Thomas Jefferson High School for Science & Technology
Public Schools suffer from a shortage of budgeting to cover lifecycles of computers and from over-worked and under-staffed IT support. In an era of open source, affordable options are now available to schools to implement solutions. In this session we will present the findings at TJHSST of one such solution: LTSP (Linux Terminal Server Project).

Bring Rocketry to the Classroom
F1 – 9:40-10:35
Presenter:
Stephen J. Potashnik – Chesapeake Bay Governor's School
Using Newton's laws of motion from physics and numerical integration techniques from calculus, rocketry challenges students to combine knowledge from different classes to solve a real world problem.

Effective (and largely painless) Practices in Institutional Research
F1 – 9:40-10:35
Presenter:
Christopher Kolar – Illinois Mathematics and Science Academy
Data-driven decision support and evaluation are increasingly expected components of institutional reporting. This session will outline how the Illinois Mathematics and Science Academy is using technology to conduct collaborative institutional research in the areas of college and academic counseling, admissions and enrollment management, student life, alumni, and human resources to support the understanding, planning and operation of programs.

How to Start a College by Using Students to Help Discover, Invent and Test New Approaches to Engineering
F2 – 10:45-11:40
Co-Presenters:
Duncan C. Murdoch – Franklin W. Olin College of Engineering
Michael Moody – Franklin W. Olin College of Engineering
In 1999 Barnes and Noble was fresh out of "primers" on how to start a college. So the faculty at Olin College invited 30 of the nation's brightest and courageous student Partners to help design, test and assess better ways to teach and deliver engineering. Olin is now just two months away from graduating its first class of engineers. How will these and future students fair in landing their first job or enrolling in top-flight graduate programs?

How Does a Science Student Become a Rhodes Scholar? Ask Texas A&M University
F2 – 10:45-11:40
Co-Presenters:
Kurt Ritter – Texas A&M University
Anne Blum – Texas A&M University
Kyle Mox – Texas A&M University
The most outstanding secondary students in mathematics, science and technology have the potential to someday become Rhodes Scholars or hold other prestigious national scholarships. To be prepared for such opportunities, they need to have interdisciplinary knowledge, a global perspective, and the ability to communicate effectively across cultures and academic areas.

Embedding and Assessing Writing in an American Studies Context
F2 – 10:45-11:40
Co-Presenters:
Virginia Wilson – North Carolina School of Science and Mathematics
Martha Regalis – North Carolina School of Science and Mathematics
Jamie Lathan – North Carolina School of Science and Mathematics
James Litle – North Carolina School of Science and Mathematics
This session explores the team-taught American Studies program at NCSSM, which is the locus of a new academic writing program. Thematic units include "The Image and Idea of the Frontier," "Women and Reform," and "Images of Africa and Africans in Law, Maps, and Narrative." Assessment topics and rubrics are included.

Employing a Computer Algebra System (Mathematica) in Mathematics Courses
F2 – 10:45-11:40
Presenter:
Cecilia Knoll – Florida Institute of Technology
This session will include a discussion and demonstration of the use of a CAS in mathematics courses.

QUEST/AOIT
F2 – 10:45-11:40
Presenter:
Allison LaVerne Galloway – Eleanor Roosevelt High School
The QUEST/AOIT Program began in 1991 with a target population of 50 sixth-grade African-American Males. A major objective of the program is to provide under-represented groups who have not gained admission into the Science and Technology program at Eleanor Roosevelt an opportunity to be successful in a rigorous math and science curriculum. The program currently serves more than 400 students in grades 7-12.

Teaching Organic Chemistry to Specialized High School Students
F2 – 10:45-11:40
Presenter:
Kimberly Henry – Brooklyn Technical High School

This session is meant to expand the realm of Chemistry elective courses within the High School setting. The incorporation of an Organic Chemistry course within this setting is meant to be student-friendly and challenging to students eager to expose themselves to higher level Chemistry.

Crafting a Student Thesis Paper
F2 – 10:45-11:40
Co-Presenters:
William F. Martin – Eleanor Roosevelt High School
Linda Watson – Eleanor Roosevelt High School
The Research Practicum course results in a five-chapter thesis paper. Based on a college-level model, this paper has three formats for science, engineering and computer studies. The formats, example chapters and style information are posted on Blackboard. The crafting of this paper is supported by classroom activities.

Project Lead The Way: A Program to Help Students Become More Interested in Math and Science
F2 – 10:45-11:40
Presenter:
Patrick Leaveck – Project Lead the Way
The National Academy of Sciences named PLTW's pre-engineering courseware as the model for future efforts to develop K-12 curriculum materials with world-class standards. There is no charge to join PLTW and the curriculum is free. This innovative program will help you see the exciting new way math and science are being taught in America.

Schools as Learning Centers for the Future
F2 – 10:45-11:40
Co-Presenters:
Darlene Haught – The North Carolina School of Science and Mathematics
Gerald Boarman – The North Carolina School of Science and Mathematics
Can you imagine the world today without the Internet, cell phones, and data projectors? This session will explore various technology opportunities available to us today and how we can prepare for the future world of gizmos and gadgets that will become commonplace in every school house.

Science & Technology Workforce – What is the role of NCSSSMST?
F2 – 10:45-11:40
Facilitators: NCSSSMST Board Members and Affiliate Member Representatives
Please join us for a panel discussion on tomorrow's scientific workforce. Questions that will be discussed are: 1. In what areas of science and engineering is there going to be a demand for NCSSSMST graduates? 2. Can NCSSSMST schools give career advise, or should we leave those decisions up to the students and their parents? 3. How will emerging trends like globalization and

outsourcing affect the careers of our graduates? We hope that many of you will contribute to the discussion of these timely and important issues.

Admissions Crossfire – Current Issues for Students, Counselors & Teachers
F3 – 1:00-1:55
Facilitators: NCSSSMST Affiliate Admissions Representatives from California, Florida, Georgia, New York, North Carolina, Massachusetts & Texas
Is the intensity of the admission process to great for young people? Should expanding use of merit scholarships include students who do not have a need? What are the pros and cons to expanding role of parents in the college selection process? How can NCSSSMST reach out to underrepresented populations for the admissions process and transition to college? These are just a few of the questions that will be addressed during the session. Come ready to contribute and hear from the experts in their fields.

Active History Classroom: Resources, Technology, and New Thinking about the Teaching of History
F3 - 1:00-1:55
Co-Presenters:
Diane E. Gerard – Alabama School of Math and Science
Derek Barry – Alabama School of Math and Science
History instructors from the Alabama School of Math and Science will share their experiences with project-based learning. Student projects as well as mapping out ways to incorporate experiential learning into existing curricula will be explored. Innovative approaches to using technology in the history classroom are covered using both Mac and PC software applications.

Ready…Set…CALCULUS
F3 – 1:00-1:55
Presenter:
Maya Kiehl – Rensselaer Polytechnic Institute
Discover a tool designed by Rensselaer faculty to prepare students to "hit the ground running" in a rich college, calculus experience. Particular attention is paid to a list of mathematical constructs that should be addressed in high school programs.

Evaluating Curricular Change
F3 – 1:00-1:55
Co-Presenters:
Steve Warshaw – North Carolina School of Science and Mathematics
Major change in an established curriculum can energize and antagonize. A balanced and informative evaluation process can help reduce the latter. We will describe the first 1 ½ years on a trimester curriculum at NCSSM and how we are evaluating it, then lead a group discussion about change at other Consortium schools.

Integrating Physics and Engineering Curricula
F3 – 1:00-1:55
Co-Presenters:
Brook Green – High School for Math, Science, and Engineering
Randall Barclay – High School for Math, Science and Engineering
HSMSE has integrated its Project Lead the Way "Principles of Engineering" course with its high school physics class. We discuss the curriculum matching process and provide examples, lesson plans, rubrics and presentations for the integrated Bridge Building unit.

Science and Technology, A Project Based Approach to Teaching Problem Solving
F3 – 1:00-1:55
Co-Presenters:
Alicia Ruch-Flynn – Liberal Arts and Science Academy of Austin
Jackson Pace – Liberal Arts and Science Academy of Austin
Anthony Bertucci – Liberal Arts and Science Academy of Austin
SciTech was recently recognized as a "National Best Practice" by the American Society of Mechanical Engineers, and is a course for ninth grade students at LASA of Austin. The course has a student-centered problem-solving curriculum, which develops skills in mechanical engineering, physics, engineering graphics, teaming, and computer processing.

Research and Internship: A Successful Student Experience
F3 – 1:00-1:55
Co-Presenters:
Cheryl Crooks – The Center for Advanced Studies at Wheeler High School
Dawn Adams – The Center for Advanced Studies at Wheeler High School
This session includes lessons and strategies that will provide a successful internship and research experience. Topics related to the internship include resumé and cover letter writing, interview skills, ethics, networking, and career assessments. The research component includes topics on research principles, review of literature, design proposal, presentation, and portfolio.

Let's Talk About Stress
F3 – 1:00-1:55
Presenter:
Debra S. Blenis – Florida Institute of Technology
Good teaching is fun, but stressful. "Stress management" for teachers is really managing pressure, which involves identifying symptoms of stress and learning specific strategies to prevent and alleviate unnecessary pressures without getting rid of students or parents! Become the stress-free, fun-loving, energetic and enthusiastic teacher you were meant to be.

Teaching and Learning in the 21st Century
F3 – 1:00-1:55
Presenter:
Anthony Bruins – NASA
Teachers must understand that global consciousness is happening based on the fact that a 21st century teaching model is evolving and necessary for students to make a contribution in the U.S. Economy. Teachers must have the tools to motivate and inspire students to embrace Science, Technology, Engineering, and Math. This global consciousness is driving teachers and students to function as an integrated team raising their awareness to support a new teaching paradigm based on creative and innovative thinking.

Teaching Programming with Scheme
F3 – 1:00-1:55
Presenter:
Karen Lang – Massachusetts Academy of Math and Science
Learn about the Teach-Scheme project, a computer programming curriculum that focuses on problem solving rather than the syntax of a particular language. If you find some students struggle in your introductory courses, see why Scheme might be an alternative that will lead to success and deeper understanding.

Using Technology to Empower Counselors, Students & Families in the College Admissions Process
F4 – 2:05-3:00
Co-Presenters:
Parnell Hagerman – ConnectEdu, Inc.
Diana Schmitz – The Missouri Academy
Too often students and counselors face an unnecessarily confusing application environment. This session will show how high schools are using simple, Web-based tools to give students, parents and counselors unprecedented access and control over the academic, financial and social implications of their academic options.

Topics in Globalization: A Teamed Course to Produce Active Students and Effective Policy Leaders in the 21st Century
F4 – 2:05-3:00
Co-Presenters:
Cathy Colglazier – Thomas Jefferson High School for Science and Technology
Melissa Schoeplein – Thomas Jefferson High School for Science and Technology

This session will highlight the Topics in Globalization course at Thomas Jefferson HS for Science and Technology. It is an integrated, interdisciplinary class that prepares the students for the AP Language and Composition and the AP US Government tests, while focusing on contemporary global issues, many of them technological or scientific. The course components will be presented in the session including investigative projects that teach students to grapple intellectually with complex world problems.

Against All Odds: Teaching Students to Think Mathematically
F4 – 2:05-3:00
Co-Presenters:
Charles Sloan Burns – Chesterfield County's Math & Science High School
Angela Wood – Chesterfield County's Math & Science High School
Years of institutionalized memorization of mathematics have crippled our education. This session will provide insight to a unique three-year program of study. Through compacting, spiraling and higher order questioning, students learn to think mathematically and are prepared for a culminating semester in math modeling.

The Keystone Center Youth Policy Summit
F4 – 2:05-3:00
Co-Presenters:
Larry Walker – Academy of Science and Technology – Conroe ISD
Aaron Murray – Keystone Science School
Learn about an exciting new student opportunity: the continuing Keystone Center Youth Policy Summit on Child and Adolescent Nutrition.

Real World Learning for the 21st Century: Cyberways & Waterways (Part I)
F4 – 2:05-3:00
Co-Presenters:
Calvin Buchholtz – John Jay High School
Stephen Amos – 4empowerment
The Cyberways & Waterways program is a virtual science community based on innovative online and field activities that seamlessly integrate technology and an interdisciplinary curriculum into science education. Students conduct water testing, publish field research online, and interact with scientists, writers, and business professionals to gain a real world understanding of science. Students also connect with peer mentors and learn how to analyze results by comparing their own field data against the data of others.

Methods in Scientific Inquiry
F4 – 2:05-3:00
Judith A. Scheppler – Illinois Mathematics and Science Academy
Aracelys Rios – Illinois Mathematics and Science Academy

Methods in Scientific Inquiry is a required core science course at IMSA, designed to build students' inquiry skills: experimental design, statistical analysis, observation, laboratory skills, communication. It is organized around five investigations and an independent student-designed mini-research investigation, aimed to promote student research. Lively discussion on topic sought and encouraged!

Does the Thought of Teaching Statistics in Your Course Bring You Down?
F4 – 2:05-3:00
Co-Presenters:
Rocco Mennella – Eleanor Roosevelt High School
Michael Samordic – Eleanor Roosevelt High School
High School students are engaging in scientific research. A manual is being developed to assist teachers with the implementation of statistics into their courses. This session will illustrate its use by examples and include the problems encountered by teachers as they integrated the manual into their courses.

Schools Like Ours: A Framework for a New Consortium Publication to Assist New and Emerging Schools
F4 – 2:05-3:00
Co-Presenters:
Dennis Lundgren – Berrien County Mathematics and Science Center
Martin Shapiro – Center for Advanced Technologies
This session will introduce a new NCSSSMST publication, Schools Like Ours. The Editorial Board will share the components of the book expected to be published in 2007. Presenters will discuss the various topics as well as solicit suggestions from the participants. New and emerging schools will benefit from this discussion.

Engineering Education for Today's Classroom
F4 – 2:05-3:00
Presenter:
Rosemary Aguilar – Southern Methodist University
This session will give you an opportunity to preview curriculum that provides students with the chance to explore engineering, math and science engineering concepts in a fun, challenging, and hands-on way. The curriculum emphasizes topics of interest to students, like the Internet, cell phones, and electronic music.

Centrinity's First Class Server-based Environment Creates an Online Learning Community
F4 – 2:05-3:00
Presenter:

Mary Jo Parker – Academy for Science & Health – Conroe ISD
This session will showcase with live Internet presentation the capability and versatility of the First Class server-based online system. Conferencing and chatroom capabilities as well as ability to add an "online" feature to the normal classroom will be target issues. Additionally, FC as a basis for an HP Technology grant will be highlighted.

Measuring Change in Cognition Using the Measure of Epistemological Reflection (MER)
F5 – 3:10-4:05
Co-Presenters:
Kirk Hallowell – Illinois Mathematics and Science Academy
Evelyn Ho-Wisniewski – Illinois Mathematics and Science Academy
Measure of Epistemological Reflection (MER) is an open response survey based on the research of Marcia Baxter-Magolda at the Miami University of Ohio. This presentation includes an overview of the Baxter-Magolda's theory of cognitive development, the instrument, and analysis demonstrating changes in students' thinking over the period of one year.

Helping Students Involved in Self-Injurious Behaviors
F5 – 3:10-4:05
Co-Presenters:
Gail Faulkner Hudson – North Carolina School of Science and Mathematics
Gina Burger – North Carolina School of Science and Mathematics
Lori Hackney – North Carolina School of Science and Mathematics
As care-takers and educators of adolescents, it is important that we understand the cause, symptoms, and treatment of the phenomenon of self-injurious behavior, which is often referred to as "cutting, self-harm, self-mutilation, or self-inflicted violence." This behavior often surfaces as unhealthy coping strategies implemented by individuals in acute psychological distress. In this session's discussion and presentation, we will address issues related to such behavior.

Is Truth in the Eye of the Beholder – Infusing the Study of History with Cultural Anthropology
F5 – 3:10-4:05
Presenter:
Michael Loret – Chesterfield County's Mathematics and Science High School
The session explores the possibility of improving critical thinking skills by placing historical events in their cultural context. This approach aims to view historical events as outgrowths of different cultures rather than as arbitrary facts. Finally, this view seeks to foster tolerance in an increasingly interconnected multi-cultural world community.

How to Teach Problem Solving (Moore Method)

F5 – 3:10-4:05
Presenter:
Michael Stueben – Thomas Jefferson High School for Science and Technology
The author will discuss how to use the famous Moore Method in high school to develop students' abilities to do mathematics.

Real World Learning for the 21st Century: Cyberways & Waterways (Part II)
F5 – 3:10-4:05
Presenter:
Calvin Buchholtz – John Jay High School
Steve Amos – 4empowerment
This hands-on second session will guide participants through the Cyberways & Waterways online community. The second will cover enrolling students, integrating the supplemental activities, connecting online with other educators, sharing best practices, and guiding student online activity.

Biotechnology Competition
F5 – 3:10-4:05
Presenter:
Richard A. Perzan – Academy of Science and Technology – Conroe ISD
Are your science classes teaching biotechnology skills? How can you extend those skills learned in the classroom to a real world setting? Establish a biotechnology competition that will allow students to demonstrate those skills and compete with other students.

Math and Science Research: A Model for Social Democracy in the Classroom
F5 – 3:10-4:05
Presenter:
Ryan Thomas Templeton – Chesterfield County's Mathematics and Science High School
Mathematics and science education has a place in the development of students into responsible citizens. The concept of democracy and social justice addresses access, achievement, and agency. These aspects are also present in student research and educators should be cognizant of how students are influenced by a research program.

NASA Resources, Microgravity, and "How to Become an Astronaut"
F5 – 3:10-4:05

Co-Presenters:
Dale Hamby – Thomas Jefferson High School for Science and Technology
Sharon Webb – Thomas Jefferson High School for Science and Technology
Members of NASA's Network of Educator Astronaut Teachers will present information on NASA resources available to teachers, conduct hands-on experiments involving microgravity, and will explain how NASA selects astronauts. The speakers were finalists in the last astronaut selection and will speak from first hand experience.

The Development of Essential Learnings
F5 – 3:10-4:05
Presenter:
Gary L. White – Center for Advanced Technologies
Have you heard of Essential Learnings? Most of our states have adopted some type of curricular framework for each of the subjects and courses within their K-12 curriculum. Spurred on by the No Child Left Behind legislation, states and individual school districts are responding by directing their teachers to develop common curricular content across each subject at each grade level. They are taking state frameworks and are detailing the competencies that need to be addressed for each course, as well as the skill sets that are part of each competency. Using these skill sets, databases of test items are created that are used to create periodic tests: ones that test the skills in each competency, and even cumulative midterm and final examinations. If students have learned the material, they will be successful on these tests. This workshop will provide process techniques for the development of Essential Learnings for courses in mathematics, science, and technology.

Forensic Science with Technology
F5 – 3:10-4:05
Presenter:
Jacklyn Bonneau – Massachusetts Academy of Mathematics and Science
This session will be using TI technology with the new Easy probes and Easy Data to do forensics activity at a variety of level. It will be a hands on session where participants will use the equipment to solve a crime.

Using Robotics for Direct Application of Academics
F5- 3:10-4:05
Presenter:
Anthony J. Bertucci – Liberal Arts & Science Academy of Austin
A brief introduction and discussion of how we have used robotics to attract and hold the full spectrum of students in a mentally challenging environment.

March 18, 2006 NCSSSMST Conference Presenters

Going Beyond the Textbook
S1 – 9:45-10:35
Presenter:
James Edward Triesler – Chesterfield County's Mathematics and Science High School
This session models a constructivist approach to education, with the use of research and technology, to demonstrate the creation of historians within the classroom.

Mathematics Competitions and Summer Math Programs
S1- 9:45-10:35
Presenter:
Max Warshauer – Texas State University
We give an overview of different math competitions, including the Po Leung Kuk Primary Math World Contest for middle school students, Siemens Competition, and Intel Competition for high school students. We describe opportunities for students to prepare for these through summer math programs, and how to introduce students to research.

Broadening Horizons: Partnering with a Foreign School
S1 – 9:45-10:35
Presenter:
Linda Newbern Cauley – Shenandoah Valley Governor's School
SVGS, along with another Virginia Governor's School are in the early stages of developing a student and faculty exchange program with a South Korean specialized high school. The advantages of such a program to rural students, as well as the administrative and cultural challenges faced, will be discussed.

Physics in the 9th Grade (Physics First)
S1 – 9:45-10:35
Presenter:
Olga Livanis – Stuyvesant High School
Students who studied Regents-level physics as their first science course, as 9th graders, at Stuyvesant High School, academically out-performed students two years older in the same course of study – in the New York State physics Regents exam at the mastery level. In addition, for the past years they are increasingly performing better in chemistry, tend to remain in the physical sciences, and elect to study more physics. What more could I ask for?

Incorporating Research Projects into the AP Environmental Science Lab
S1 – 9:45-10:35
Presenter:
Susan W. Rollinson – Jackson River Governor's School
The AP Environmental Science course provides an excellent opportunity to introduce students to scientific research. A wide variety of projects are appropriate, from continued monitoring of water and air quality to one-time experiments with pond water. Projects conclude with written or oral reports.

Hi Tech Purple Martins: Using Technology to Bring Nature into the Classroom
S1 – 9:45-10:35
Presenter:
Michael James Scully – John Jay Science and Engineering Academy
Procedures for maintaining a Purple Martin colony on campus will be presented. The technology used to collect data around and inside the nests as well as to transmit live nest-cam footage from nests into the classroom will be demonstrated. Opportunities for student activities and science projects will be discussed.

Leveraging Your Library for Advanced Science Research
S1 – 9:45-10:35
Presenter:
Andy Spinks – Center for Advanced Studies at Wheeler High School
The Library Media Specialist at a Science, Math, and Technology magnet school describes the instructional collaboration between the school's science faculty and the staff of its award-winning library. These educators have worked together to implement inquiry-based science research projects in grades 9-12.

Using a Discussion Board with Students
S1 – 9:45-10:35
Presenter:
Karen Pikula – Dearborn Center for Math, Science & Technology
We will discuss use for student-student communication, student-teacher communication, gathering prior knowledge, question-answer help, posting links, posting syllabi, taking surveys. We have used a public discussion board for four years. We are in transition to using Blackboard. We will discuss security concerns, cost and administration.

THE INFINITY-PROJECT Cutting Edge Technology for Introducing Students to Engineering
S1 – 9:45-10:35

Co-Presenters:
Jay P. Sumpter – John Jay Science and Engineering Academy
Daniel Oliver – John Jay Science and Engineering Academy
This workshop will introduce participants to the content and technology used in the Infinity-Project, a course developed at Southern Methodist University to increase student interest in engineering. The course relates physics and math to signal processing while exposing students to the excitement and relevance of modern high-tech engineering.

Transforming Teaching and Learning: The Learn More/Teach More Grant
S2 – 10:45-11:35
Co-Presenters:
Martha Regalis – North Carolina School of Science and Mathematics
Virginia Wilson – North Carolina School of Science and Mathematics
Jamie Lathan – North Carolina School of Science and Mathematics
James Litle – North Carolina School of Science and Mathematics
This session will show how "Learn More/Teach More," a three-year history grant from the U.S. Department of Education, can serve as a competency and standards-based model for teacher enrichment and renewal at the state level, building on partnerships between NCSSM and area universities.

Beauty and Mathematics: Mathematicians' Search for Order and Pattern
S2 – 10:45-11:35
Presenter:
Frank Wang – Wang Education
Through humor, demonstrations of mathematics involving audience participation, and historical anecdotes, this talk shows how mathematicians are able to find order and pattern in virtually every situation, no matter how chaotic and random. This talk is designed to help those teachers who are asked by students "What do mathematicians do?"

Partnering with your Business Community
S2 – 10:45-11:35
Presenter:
David J. Norton – Education for Tomorrow Alliance
Your business community has a vested interest in education. And, for the most part, the members of that community are honored to be called to interact with, and support schools. However, there is a chasm that separates education and business the two groups do not know

each others motivators, cultures, and values. It takes a long-term vision and energy to overcome the chasm, but the rewards can be meaningful.

Engineering for Science Teachers, a Summer Institute at New Jersey Institute of Technology
S2 – 10:45-11:35
Co-Presenters:
David Reibstein – New Jersey Institute of Technology
Mark Godwin – South Carolina Governor's School for Science and Mathematics
Engineering concepts in the high school science curriculum enhance students' interest by involving them in real-world applications. High school science teachers were shown examples of engineering concepts for enhancing their science instruction at a NCSSSMST-sponsored summer workshop, under the auspices of NJIT's Center for Pre-College Programs and Dorman Honors College.

Keep Your Sensors Pulsing with Vernier Software & Probes
S2 – 10:45-11:35
Presenter:
Cheryl Lindeman – Central Virginia Governor's School for Science and Technology
Come see how your physiology lab can be the beacon for research with Vernier Software and Probes. Several of the new physiology probes/sensors will be highlighted and examples of student work will be demonstrated. The session will be a mini workshop for participants to try out the various combinations of sensors with the Vernier Labpro interface. Vernier's new Human Physiology with Vernier Lab Manual will be the door prize. This session is sponsored by Vernier Software & Technology.

From the Depths of the Ocean to the Far Reaches of Outer Space
S2 – 10:45-11:35
Co-Presenters:
Lisa Wu – Thomas Jefferson High School for Science and Technology
Lee Ann Hennig – Thomas Jefferson High School for Science and Technology
Journey from the depths of the ocean to the outer reaches of the universe. This discovery-based student research program develops projects that contribute to the diffusion of knowledge in the scientific community. Students collaborate with working professions to confront conceptual problems, test hypotheses, overcome obstacles, and formulate analysis of their investigations.

Not Tired Grading Yet? Grading AP Exams Enhances Your Preparation for Teaching Your AP Courses
S2 – 10:45-11:35
Presenter:

Mary Ann Dvorsky – Montgomery Blair Magnet Program for Science, Mathematics & Computer Science
Serving as a reader for the Advanced Placement exam in your subject area is a valuable professional development activity. Learn what is involved and how the activities that take place during the AP Reading can contribute to your student's readiness for this spring ritual.

Ethics in a Digital World
S2 – 10:45-11:35
Presenter:
Joshua Strong - Thomas Jefferson High School for Science and Technology
People born after 1980 are native to the information age. People born before are cyber-immigrants. Ethical uses of inventions tend to be defined after the fact. The pace of technological innovation and the ease of use present daunting challenges given the immigrants are in charge of this brave new world.

Working Session on a Consortium Common Data Set, Intra-Institutional Data Sharing, and Collaboration
S3 – 11:45-12:35
Presenter:
Christopher Kolar – Illinois Mathematics and Science Academy
Data-driven decision support and evaluation are increasingly expected components of institutional reporting. Because of our unique institutional characteristics and missions, Consortium members often lack comparative data for use in understanding institutional performance. This working session will focus on the definition of a Common Data Set that could be collected from Consortium schools and used to inform the understanding planning, and operation of programs.

Introduction to Engineering with Materials Science and Nuclear Application Activities
S3 – 11:45-12:35
Presenter:
Cheryl Lindeman – Central Virginia Governor's School for Science and Technology
Bill Bishop – Central Virginia Governor's School for Science and Technology
Come learn how Central Virginia Governor's School students developed web activities based on nuclear applications research projects. The students acquired engineering skill sets through partnerships with engineering firms and Penn State's Radiation Science Center.

Internet Based Assessment in AP Physics Classes
S3 – 11:45-12:35
Presenter:
Emmanuil Galitskiy – Academy for the Advancement of Science and Technology – Bergen County

Over the last two years we have started using an Internet based assessment service, Webassign, in several science classes including AP Physics. Student feedback of this method of assessment has been extremely positive.

The Flame & The Atom – Replicating Rutherford's Gold Foil Experiment in a Micro-Cloud Chamber
S3 – 11:45-12:35
Presenter:
Horace E. Walcott – Brooklyn Technical High School
Participants will analyze Rutherford's Gold Foil Experiment conducted in a micro-cloud chamber, as a computer animation simulation. They well then construct a model of the atom based on data from this experiment and data derived from the replication of other classic investigations that contributed to the deciphering of the atom.

Selecting and Admitting Students with Diverse Backgrounds to a Science, Mathematics, and Technology High School
S3 – 11:45-12:35
Co-Presenters:
Gerald Boarman – North Carolina School of Science and Mathematics
Michael Reidy – North Carolina School of Science and Mathematics
Can you really select students to attend a Science, Mathematics, and Technology High School based on one test or a set of grades?" The North Carolina School of Science and Mathematics community has discussed this question for some time and implemented an alternative approach to selecting students for admission for the past three years.

Building a System of Assessment at IMSA
S3 – 11:45-12:35
Presenter:
Kirk Hallowell – Illinois Mathematics and Science Academy
The Illinois Mathematics and Science Academy is in the process of building a comprehensive system of assessment to measure student learning and development outcomes. This presentation addresses the structure and process for collecting, analyzing and disseminating data related to the system. Issues of building buy-in and support from faculty and staff will be addressed.

Amateur Radio ("Social Studies and Science Really Do Have Something in Common?")
S3 – 11:45-12:35
Presenter:

Ronny D. Risinger – LBJ High School
This session will describe how a truly interdisciplinary subject can be taught. Through Amateur Radio, schools can combine the best of social studies with the application of science theory. Session will cover materials, projects, and how to get them for FREE!

Debates in Biology: Excitement Through Controversy
S3- 11:45-12:35
Presenter:
Paul A. Cammer – Thomas Jefferson High School for Science and Technology
The Socratic method of teaching (the process of teaching by asking questions of students), though generally very effective, can be frustrating for students. This session explores methods of replacing this frustration with excitement by structuring class discussions as debates. Lectures are almost completely eliminated in favor of student-led interactions.

Mini-Term: Re-energizing Academic Interest
S3 – 11:45-12:35
Presenter:
Thomas H. Clayton – North Carolina School of Science and Mathematics
A Mini-Term as part of your academic curriculum can reinvigorate both students and staff. The opportunity to redirect academic focus for a week, or even longer, to topics of your faculty and students' choice can provide the stimulus to energize your curriculum throughout the year.

Python: A Programming Language Ideal for Computer Science Instruction and Cross Discipline Computing
S3 – 11:45-12:35
Presenter:
Shane Torbert - Thomas Jefferson High School for Science and Technology
Python is an easy-to-use language with an interactive environment – perfect for beginning students and scientists with limited programming experience. Python is also a very powerful, widely used, fully supported, object-oriented, open-source language – perfect for your very best students and the most experienced programmers.