



Norwin School District

Norwin High School, 251 McMahon Drive, North Huntingdon, PA 15642



STEM SUMMIT

Monday, March 12, 2012
8:30 a.m. to Noon
Norwin High School Auditorium
www.norwinsd.org/STEMSummit

SCIENCE

TECHNOLOGY

ENGINEERING

MATH

Keynote Speakers

Dr. Lawrence Mussoline

Superintendent, Downingtown Area School District

Dr. Lawrence Mussoline will speak about the Downingtown STEM Academy that opened in August 2011. The school features a project-based learning environment, in which students are exposed to the kinds of design and implementation practices that scientists and engineers use on a regular basis. Students are engaged in rigorous, challenging academic work that requires a mindset of growth and effort.



Dr. Lawrence Mussoline

Mr. George Fiore

Headmaster of the STEM Academy, Downingtown Area School District

Mr. Fiore has served as Headmaster of the Downingtown STEM Academy for two years. During that time, he has led the development and implementation of one of the most innovative educational programs in the nation. The STEM Academy is one of the only International Baccalaureate World schools with a Science, Technology, Engineering, and Mathematics focus in the world. The STEM Academy is an effort-based school that focuses on partnering with the business community to provide a 21st Century education.



Mr. George Fiore

STEM Panel Discussion

Moderated by: *Mr. Michael Choby, Assistant Principal, Norwin High School/STEM Education Coordinator*

Panelists:

Mr. John Caverno, *Senior Vice President of Human Resources and Chief Human Resources Officer, Excelsa Health*

Mr. Jean-Dominique Le Garrec, *Engineering Services Growth, Westinghouse Electric Company*

Mr. Todd Fleming, *PDS Industries*

Dr. Robert Scherrer, *Principal, Pittsburgh Science & Technology Academy*

Mr. Glenn Skena, *Manager, Methods Engineering, Hamill Manufacturing Company*

Ms. Mehgan Riley, *Kennametal Foundation Coordinator, Kennametal Inc.*

BREAKOUT SESSIONS

Learn More about the Downingtown STEM Academy: Q & A with Our Keynote Speaker

Presenters: Dr. Lawrence Mussoline and George Fiore

In this session, our Keynote presenters will spend time talking about the Downingtown STEM Academy, which offers a curriculum focused on Science, Technology, Engineering and Mathematics Pathways, and answering participant questions.

Robotics as a STEM Tool

Presenters: Matt Mincucci & Robert Shuber

This session will demonstrate how robotics can be a useful tool for integrating STEM into any classroom. Robotics can be used to teach any subject in a fun and exciting way bringing 21st and 22nd century skills into your classroom. Robots are a great way to build interest in the STEM areas for young children and female students. We will discuss options for age appropriate hardware and software choices, purchasing and funding a robotics program and integrating robotics into your school. Move over Will Robinson, the future of STEM Education is here!

What Will Carnegie Science Center's Chevron Center for STEM Education and Career Development Do for You?

Presenter: Linda Ortenzo

Learn about new opportunities available through Carnegie Science Center's Chevron Center for STEM Education and Career Development for teachers, administrators and students. These initiatives convene educators, industry leaders, and STEM organizations to provide Pre K-12 students with innovative, hands-on curriculum and real world experiences to prepare them for 21st Century careers.

Developing a Vision for STEM Education

Presenter: Gabriela Rose

Being competitive in a global society requires all students to be prepared in STEM subjects. STEM and 21st Century literacy is no longer just a prerequisite for college-bound students, but has become a necessity for all students to be career-ready. This new reality has led to calls for a focus on STEM education by numerous organizations. But what does a vision for successful STEM education look like in the classroom? Participants in this session will develop a common vision for STEM education based on a number of pertinent national publications and short video clips.

Register at www.norwinsd.org/STEMSummit

Successful K-12 STEM Education: How might Common Core State Academic Standards help?
Presenter: Michael Fierle

Having clear targets for what is taught matters. Using the Common Core State Standards to have fewer, clearer, and more rigorous standards is a key strategy being pursued by the majority of states, including PA. What do these new standards require of students? How do they differ from current expectations? How can implementing them develop the creative problem-solvers the future demands? Facilitated by professional staff developers from the Math & Science Collaborative, this session will introduce participants to the Common Core State Standards. Participants will explore the mathematical practices as well as the scientific and engineering practices from the national Framework for K-12 Science Education.

ScALuDa: Bring STEM Alumni Back Into Your Classroom
Presenter: Matthew Anticole

A school district invests a lot of time and effort into its students, many of whom go off to do amazing things in engineering, medicine and science. These alumni are filled with stories and experiences that can enhance instruction and ignite interest among students toward STEM fields. This presentation will share one teacher's experiences in founding and growing a "Science Alumni Day," aka, "ScALuDa" program. From humble origins, the most recent event included approximately 2500 students in grades 6-12 attending seminars presented by 40 alumni presenters over two days in December 2011. The presenter will share different formats that have been tried over the years, along with the strengths and limitations of each. Also shared will be advice on steps teachers and other school professionals can take now to begin to grow the program in their own districts.

National Geographic Science Program
Presenters: Dave Lynn, Julie Hazlett & Brian Colgan

The National Geographic Science program immerses students into the nature of science and inquiry, as well as builds scientific and content literacy. Lessons are designed around these guiding principles allowing for authentic inquiry based science. Inquiry is the primary instructional tool, and is assessed regularly throughout the program. Nat Geo offers four levels of inquiry: explore, direct inquiry, guided inquiry, and open-ended inquiry.

Young Engineers Program
Presenter: Meghan Riley, Dr. Gennaro Piraino, and Students from Greater Latrobe HS

The Kennametal Foundation Young Engineers Program provides a hands-on experience for local high school juniors and seniors interested in engineering. The program began in September 2011 in conjunction with Greater Latrobe SD. The program provides a variety of experiences for the students including classroom discussion, hands-on projects, mentoring from engineers and manufacturing insight experiences at our various facilities. Each class is taught by a select group of nearly 30 talented employees from various Kennametal locations. Designed to showcase engineering careers and modern manufacturing through experience, the program is one of many education and training programs already in place across the company's global operations.

Engineering is Elementary Program

Presenters: Greg Egnor, Jenifer Baxter-Blubaugh & Monica Young

Engineering is Elementary (EiE) fosters engineering and technological literacy among children. EiE has created a research-based, standards-driven, and classroom-tested curriculum that integrates engineering and technology concepts and skills with elementary science topics. EiE lessons not only promote science, technology, engineering, and mathematics (STEM) learning, but also connect with literacy and social studies. Through a hands-on engineering design challenge, students work in teams to apply their knowledge of science and mathematics; use their inquiry and problem-solving skills; and tap their creativity as they design, create, and improve possible solutions. In the end, students realize that everyone can engineer!

What Regenerative Medicine: Growing Futures in STEM Education and the K-12 Classroom
Presenter: Joan F. Schanck, MPA

Can Pittsburgh's researchers and clinicians fabricate new tissues and organs or induce damaged tissues to regenerate? Can K-12 STEM educators translate the promise of tissue engineering and regenerative medicine (TERM) to diverse student populations to reinforce learning and excite interest? Because tomorrow's scientists and engineers emerge from today's youthful students, students must be actively exposed to the interdisciplinary nature of the STEM fields of the future. TERM provides an ideal exemplar for STEM Education and an enticing hook to capture students' interests. This session provides an introduction to this remarkable field, followed by an overview of suggested classroom uses of the curricula, resources available to engage middle and high school students and teachers. Central to PTEI's mission is an educational mandate to develop and implement educational programs to grow talent required to support this field.

Biotechnology, Bioengineering, & DNA, Oh My!!!
Presenter: Andrea Redinger

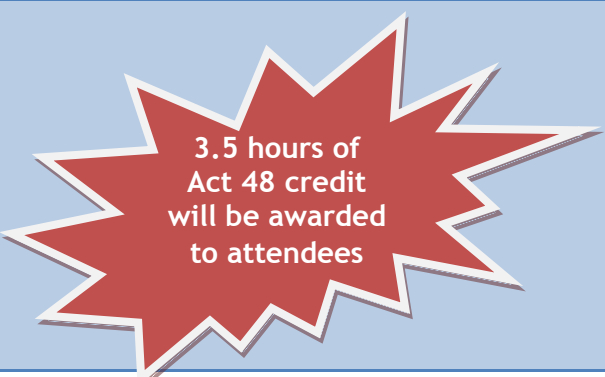
Biotechnology, or the manipulation of any living system for the purpose of producing a useful product or solving a problem, is today's "science in the news." Even though it may be a "mouthful" to describe, biotechnology is a multidisciplinary science with many powerful applications and great potential for future discoveries. Teachers will be provided with ideas on implementing biotechnology and bioengineering into their current science curriculum.

Engaging Girls in STEM
Presenters: Lori Harvey & Colleen Smith

A strong and plentiful pipeline of well-educated STEM students and prospective employees will exist only if girls and women are a piece of the equation. Come find out more about what influences girls' career choices and about resources and programs that are working to change the culture for girls and women in STEM. AAUW's Research Report: Why So Few? Women in Science, Technology, Engineering, and Mathematics, The Female Alliance for STEM Excellence (FASE), and the National Girls Collaborative Project will be among the resources highlighted.

What the Frack?
Presenter: Sarah Kucherer

What and where is the Marcellus shale and why do we hear about it in the news? Marcellus shale is a huge issue for scientists and the general public; it is a source of controversy and revenue. This program describes Marcellus shale and debatable issues surrounding drilling in PA. We will explore ways to teach students about this issue. We need to equip them to evaluate and prepare for technological and societal challenges. Sources of reliable information are provided.



3.5 hours of
Act 48 credit
will be awarded
to attendees