NHSTE ~ Tech Teachers/Integrators SIG

STEAM Ahead!

SERESC, Bedford, NH

Thursday, April 13th, 2017

OPENING SESSION (9:00 to 9:45) in Rooms 200/201

Empowering Girls Through STEM

presented by *Amy Cantone, 5th grade teacher, Swasey Central School, SAU 16 ~ acantone@sau16.org*

It is well known that even today, females are under represented in the STEM fields. Women make up 50% of the population and 49% of the US work force, yet, they account for only 24% of the STEM workforce. With gender stereotypes about Math and Science developing as early as second grade, we need to start engaging girls from the start. Examine ways to reach girls in the classroom and beyond.

REMINDER: the **Exhibitor Playground Area** is open from 8:30 a.m. to 3:15 p.m., so be sure to plan a time to check the playground and get some "hands-on" experience with all of our exhibitors!

AM CONCURRENT SESSIONS

Session 1: 10:00 to 10:35 ~ Please select one of the following sessions, intended grade range is in brackets [ ]:

Room 200	Room 201	Room 209	Room 210
Computer Science is Foundational [6-12]	***Making a Makerspace [K-8]***	***Clear Touch Interactive Panels ~ GOOD BYE PROJECTORS! [K-12]***	***Engineering, Biomedical, & Computer Science with PLTW Launch [K-5]***

Computer Science is Foundational [6-12] ~ *David Benedetto, Director of STEM Education, NHDoE ~ david.benedetto@doe.nh.gov*

Computer related occupations are growing at double the national average, with 45% of all STEM jobs in the field of computing. Because of large employment and fast growth, computer occupations will add far more jobs than any other STEM occupation - almost eight times as many as the next largest growth area (engineers) over the next 10 years. Computing impacts nearly every aspect of our lives - social, economic, political, etc. This is not just a workforce development issue; it is also about having an informed populace. Learn about Computer Science and it's place in K-12. Join David to take a look at some tools and technologies that can help facilitate student and professional learning in this critical subject area.

Making a Makerspace [K-8] ~ *Amy Cantone, 5th Grade Teacher, Swasey Central School, SAU 16 ~ acantone@sau16.org & Lisa Brown ~ 2nd grade teacher, Swasey Central School ~ lbrown@sau16.org*

Ever thought of finding a spot in your classroom or building that fosters creating? A year ago, this was just a wish for us. Learn how to turn your Makerspace idea into reality. Find out how we harnessed the power of Donor's Choose, our local parent group, Google Classroom, and fabulous educators. Grab resources to make in your classroom, find out our must have items, and see how to host a school wide challenge. *(repeated session 4)*

Clear Touch Interactive Panels ~ GOOD BYE PROJECTORS! [K-12] ~ *Jason Houser, The Ockers Company & Mark Trifthauser, Cleartouch Interactive Representative for New England ~ jasonh@ockers.com*

Clear Touch Interactive panels empower a new generation of teaching and learning without all of the logistical headaches. Our interactive displays are the ideal classroom technology solution, being easy-to-use, simple to install, and providing more than 50,000 hours of hands-on classroom use—all without costly software subscriptions and high-cost maintenance.

Engineering, Biomedical, & Computer Science with PLTW Launch [K-5] ~ *Mary Laturnau, PLTW Director of School Engagement ~ mlaturnau@pltw.org*

Using their activity-, project-, and problem-based (APB) instructional design, PLTW Launch (K-5) taps into students' exploratory nature, engages them in learning that feels like play, and encourages them to keep discovering – now and for years to come. Whether designing a car safety belt or building digital animations, students engage in critical and creative thinking, build teamwork skills, and learn to try and try again when faced with challenges. PLTW programs are designed to inspire students to believe in their abilities, test their limits, and question what is possible. Come participate in a Launch activity and take home an unplugged CS activity for your classroom.

Session 2: 11:00 to 11:35 ~ Please select one of the following sessions, intended grade range is in brackets [ ]:

Room 200	Room 201	Room 209	Room 210
Using Media Arts to Promote Student Ownership of Student Digital Portfolios [K-8]	***Making: Advanced Student Driven Learning [K-8]***	***Integrate Innovation into your Math, Science, Engineering, & Arts Lessons with TI! [6-12]***	***Technology Magic: Mesmerize Students Teaching Digital Literacy & Problem Solving Skills! [4-12]***

Using Media Arts to Promote Student Ownership of Student Digital Portfolios [K-8] ~ *Stan Freeda, NH State Ed Tech Director, NHDoE ~ Stanley.Freeda@doe.nh.gov*

For the past 10 years the NH Minimum Standards for School Approval have required the generation of student digital portfolios, yet districts still struggle with how to implement this requirement in a meaningful and non-intrusive way. With so many initiatives taking time and energy away from teaching, demonstration of ICT Literacy through digital portfolios has often been left behind. Student portfolio development can be a powerful tool to support personalized, performance-based learning, student voice, world-class knowledge and skills, anytime/anywhere learning, and a system of support for students having difficulties. Portfolio development engages students in new and innovative ways that deepen the learning experience by adding metacognitive practices into the learning and assessment system. This session is designed as an open forum for conversation and discussion around the development of K-8 student portfolios and their ultimate assessment for student ICT literacy by the end of 8th grade. This experience helps you to understand how to improve the learning experiences of your students by sharing and collaborating with fellow educators. You are encouraged to bring a laptop with wireless connectivity to access online resources, but it is not a requirement for participation.

Making: Advanced Student Driven Learning [K-8] ~ *Diane Connors, Library Teacher, Hampstead Central & MS ~ connorsd@hampsteadschools.net & Lori-Lyn Griffin, Grade 8 Science Teacher Hampstead MS ~ griffinl@hampsteadschools.net*

Discover how to add Makerspace programming to the elementary and middle school libraries. Learn how two schools (K-4) and (5-8) began their Makerspace journey. The many strategies employed are included: for example, 1) how collaboration with a content teacher can orient over 100 middle school students to multiple Makerspace stations in one day, 2) how free materials can be just as engaging as more expensive ones, 3) how to promote the concept through pictures, staff meetings, typical library services, and more. Engage ALL students in real-world 21st Century skills! Whether your district is embracing STEM, STEAM, or other initiatives, Makerspace programming fosters creativity, risk-taking, design processes, problem-solving, collaboration, perseverance and more! You need not be proficient in the tools or technology, as your students will share their expertise as you facilitate their learning. A Library Media Specialist and a middle school content teacher share how you can build a Makerspace that is not about what is "in it" but what comes "out of it".

Integrate Innovation into your Math, Science, Engineering, & Arts Lessons with TI! [6-12] ~ *Ellen Browne, T3 PD Instructor & Jim Donatelli, Education Technology Consultant, Texas Instruments ~ jdonatelli@ti.com*

Full STEAM Ahead, join this hands-on session to learn how physical computing (the "E") can enhance your mathematics and science classrooms as well as provide connections to the "A" in STEAM. Engage your students with the new TI-Innovator™ Hub along with TI-Nspire™ CX and TI-84 PLUS CE technology. Ready-to-use handouts will be available. Each participant receives a TI-branded gift and a raffle will be held for attendees of this session with the lucky (winner(s) choosing a TI handheld or software product of their choice (some restrictions apply). Come join the fun!

Technology Magic: Mesmerize Students Teaching Digital Literacy & Problem Solving Skills! [4-12] ~ *David Ciolfi, Regional Sales Consultant, Technology Education Concepts, Inc. ~ David.Ciolfi@TECedu.com*

Join us to hear stories about how educators use 3D printing to integrate disciplines not only in science, technology, engineering, and math, but also art, graphic design, music, teacher education, business, environmental studies, forensics, and entertainment…the list of subjects goes on and on! Explore the basics of 3D printing using a remarkable 3D printer, Ultimaker - one of the most reliable, world-renowned desktop 3D printer brands. Hear about the all-new Ultimaker "Pioneer Program" developed by educators for educators, and see how to instantly access the many resources Ultimaker has to help schools succeed with 3D printing in the classroom. Every attendee takes home an "Everyday 3D Printing Checklist", a reusable laminated student checklist of essential questions that should be considered before students hit that "print" button on your classroom 3D printer!

Please note that we have three exhibitors with tables only, be sure to stop by and see what they have to share:

- **Connection** ~ *Jill Meade, Business Development Manager, jmeade@govconnection.com*
- **Fujitsu** ~ *Alan Filcher, Client Executive, afulcher@us.fujitsu.com*
- **Pearson** ~ *Shaun Duffy, Account Manager, shawn.duffy@pearson.com*

POST LUNCHEON PRESENTATION (12:30 to 1:00) in Rooms 200/201

Everyone Can Code!

presented by *Matt Brooks, Dan DelVecchio, & Rick Hampson, Apple Computer ~ mjbrooks@apple.com*

Apple Computer believes that coding is an essential skill that teaches students how to solve problems and work together in creative ways. Learn about ***Everyone Can Code***, a program designed to give everyone the power to learn, write, and teach code with Swift. Discover Swift Playgrounds—a free iPad app for first-time coders with fun and interactive lessons—and explore the accompanying teacher guides. Learn about App Development with Swift, a high school and college curriculum that shows students how to create apps from start to finish. Then explore ways your district can integrate coding into your curriculum.

PM CONCURRENT SESSIONS

Session 3: 1:20 to 1:55 ~ Please select one of the following sessions, intended grade range is in brackets [ ]:

Room 200	Room 201	Room 209	Room 210
STEAM Playground, Exploration, & Brainstorming Experience [4-8]	***STEAM Family Night [K-8]***	***Attracting Students to STEM Careers through AR/VR STEAM Labs [4-12]***	***Maker Mindset & Tools – a Splash in STREAM Learning [K-8]***

STEAM Playground, Exploration, & Brainstorming Experience [4-8] ~ *Sheila Adams, Science & Social Studies Teacher, Rye Junior HS ~ sadamsrjh@gmail.com*

Join Sheila, a middle school science teacher and technology innovator, as she demonstrates a number of STEAM resources including Sphero, Ozobots, Vex robot, Osmo, and 3D printer. Following the demonstration, explore and experiment with these learning devices and brainstorm how they can be effectively integrated into STEAM activities across the grade levels. This session is intended to be informal, interactive, and contributory. Sheila shares her experiences and seeks your ideas for effective STEAM integration.

STEAM Family Night [K-8] ~ *Heather Mailloux MS Gifted & Talented Teacher, Hampstead MS ~ maillouxh@hampsteadschools.net & Kim Downey, Art Teacher, Hampstead MS ~ downeyk@hampsteadschools.net*

Learn how to organize and host a Community STEAM night at your school! The goal of the STEAM Night is to 1) identify and integrate resources and services from the community to strengthen the school programs of science, math, engineering, art, and mathematics, 2) involve parents and family in the process, and 3) collaborate with community resources. Participants in this session: explore, identify, and integrate resources and services from the community to strengthen the school STEAM programs; experience a sample of STEAM challenges conducted at STEAM Family Night; and share the process of planning and implementing a school and community educational event.

Attracting Students to STEM Careers through AR/VR STEAM Labs [4-12] ~ *Greg Cantone, NE Manager zSpace & Brian Bishop, Technical Education Products, Inc ~ gcantone@zspace.com*

From troubleshooting quadcopters to dissecting human brains, learn how students are inspired to join STEM careers through AR/VR STEAM Labs with hands-on activities aligned to Next Generation Science Standards. A Virtual Reality STEAM Lab immediately invokes curiosity as it allows students to create, test, and experiment in an interactive, 3D environment. Students know computers, they have seen 3D movies, but now they can pick up, manipulate, and explore 3D images that can be "lifted" from the screen. Through interactive 3D visualization, attendees learn how today's students in over 400 K-12 schools and universities are interacting with virtual environments to discover concepts, such as the complexity of human anatomy or the components of a simple engine, in ways often impractical or impossible in the real world.

Maker Mindset & Tools – a Splash in STREAM Learning [K-8] ~ *Irina Tuule, Co-Founder & VP Strategy, Eduporium ~ ituule@eduporium.com, Jane Fine, Director, School/ESA Relations, & Thadd Palmer, Project Manager*

The ongoing Maker Revolution has filled Makerspaces with innovative technology designed to build the problem solvers of tomorrow. Since evolving from community hobbyist spaces to educational Makerspaces in schools and libraries, MakerEd has created invaluable opportunities for STEAM education. Resonating with children's natural desire for discovery and powered by pedagogy for active learning, growth mindset, and experiential education, MakerEd strengthens student-centered teaching practices, increases student engagement and ownership, and provides an experience-based outlet for students to join the vibrant global community. Come explore the pedagogical implications of the Maker mindset, examine the selection criteria and educational benefits of Maker tech tools, and look at powerful ways to incorporate MakerEd into classrooms with examples of successful MakerEd programs: Tech Bundle customization, Mobile Makerspaces, Try First approach, Tech Petting Zoo, and partnered PD.

Session 4: 2:20 to 2:55 ~ Please select one of the following sessions, intended grade range is in brackets [ ]:

Room 200	Room 201	Room 209	Room 210
Teaching & Learning Using Web 2.0 Tools [4-12]	***Making a Makerspace [K-8]***	***Everyone Can Code ~ A Deeper Dive Hands-on Experience [4-12]***	***Welcome to the Modern Classroom [K-12]***

Teaching & Learning Using Web 2.0 Tools [4-12] ~ *Stan Freeda, NH State Ed Tech Director, NHDoE ~ Stanley.Freeda@doe.nh.gov*

More and more students expect to be in control of their own learning. The web, offers a variety of tools which are freely available and can be used to engage students in 21st Century learning. Teachers can use these resources to create engaging lessons and activities that challenge their students. At the same time, these lessons can be interactive and available at school, at home, or anywhere the student has internet access. Explore the kinds of free Web 2.0 tools and resources available on the web for you to use, then collaborate and discuss potential uses of these tools to enhance your STEAM activities.

Making a Makerspace [K-8] ~ *Amy Cantone, 5th Grade Teacher, Swasey Central School, SAU 16 ~ acantone@sau16.org & Lisa Brown ~ 2nd grade teacher, Swasey Central School ~ lbrown@sau16.org*

Ever thought of finding a spot in your classroom or building that fosters creating? A year ago, this was just a wish for us. Learn how to turn your Makerspace idea into reality. Find out how we harnessed the power of Donor's Choose, our local parent group, Google Classroom, and fabulous educators. Grab resources to make in your classroom, find out our must have items, and see how to host a school wide challenge. *(repeated session 1)*

Everyone Can Code ~ A Deeper Dive Hands-on Experience [4-12] ~ *Matt Brooks & Dan DelVecchio, Apple Computer ~ mjbrooks@apple.com*

Take a deeper dive into ***Everyone Can Code***, a program designed to give everyone the power to learn, write, and teach code with Swift. Discover Swift Playgrounds—a free iPad app for first-time coders with fun and interactive lessons—and explore the accompanying teacher guides. Learn about App Development with Swift, a curriculum for high school and college that shows students how to create apps from start to finish. Then explore ways your district can integrate coding into your curriculum. Participants planning to attend this session might want to download Swift Playgrounds to their device ahead of time from the iTunes store at:
https://itunes.apple.com/us/app/swift-playgrounds/id908519492?mt=8
Apple will also have 20 iPads available for participants to use for this hands-on session.

Welcome to the Modern Classroom [K-12] ~ *Geoffrey Allison, Solution Sales Executive, Promethean & Whalley Computer ~ Geoffrey.Allison@Prometheanworld.com*

Come explore technology solutions that are enhancing the teaching & learning experience in the classroom. Today's "neo-millenial" learner only knows of a world in which all learning is interactive, content is vast, and people are both connected and collaborative at all times. By re-imagining the way educational technology solutions are DESIGNED, we can create dynamic environments, communities, and tools that empower teachers, engage parents, and motivate students to learn!

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- **Pearson** ~ *Shaun Duffy, Account Manager, shawn.duffy@pearson.com*

~~~~~~~~~~~~~~ *NHSTE Supports "Going Green" by Posting Digital Resources* ~~~~~~~~~~~~~~

- Our presenters are encouraged to "**Go Green**" and print a minimum number of handouts. Instead we encourage them to post their resources on a Google Doc with access to anyone with the URL.
- The address for the **STEAM Ahead!** Google Doc is: **http://tinyurl.com/TTSIG-4-13-17**
- If you have never used a Google Doc, do not fear, it is simple to access and easy to post. We have created this as a public page; so anyone with the address can go to the site, post comments, share resources, and access workshop information. You do not need to set up a Google account to access or post to this page.
- When you go to the Google Doc you will see a copy of this handout pasted on the page. There will be a space following each session description for the presenter to add links or upload files that you can download and a place to add comments.
- If you want to add to the Doc, just type away. Please proofread your comments for grammatical correctness and be professional in your postings.
- Join us and become part of the interactive web!