



**2017 Connecticut Science Educators Annual Conference**

**Real World Science All Around Us - Explore, Experiment, Explain**

**November 18, 2017 8:00am – 3:30pm**  
**Hamden Middle School 2623 Dixwell Ave. Hamden, CT**

7:00 – 8:00	Registration (Main Hall)	
7:00 – 8:00	Continental Breakfast (Cafeteria)	
8:00 – 9:00	Breakout A	Begins on page __
9:00 – 3:00	Exhibitor Hall Open (Gymnasium)	See page __
9:15 – 10:15	Keynote & Annual Meeting (Auditorium)	See page __
10:25 – 11:25	Breakout B1	Begins on page __
11:25 – 1:25	Lunch (Cafeteria)	
10:45 – 11:45	Breakout B2	Begins on page __
11:55 – 12:55	Breakout C1	Begins on page __
12:30 – 1:30	Breakout C2	Begins on page __
1:40 – 2:40	Breakout D	Begins on page __
3:00	Raffle Prize Drawings (Gymnasium)	



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**Keynote Speaker and Presentations**

Breakout-Room	
Keynote -Auditorium	The Wonder - Unlocking the Power of the NGSS Paul Andersen, Bozeman Science
B2-133	Scientific Inquiry in the Elementary Classroom Paul Andersen, Bozeman Science
C1-133	Scientific Inquiry in the Secondary Classroom Paul Andersen, Bozeman Science

8:00 – 9:00 Breakout A (Cross-indices and facility maps are available near the end of this program.)

<b>Breakout -Room</b>	<b>Title</b> Strand Grade Level	<b>Presenter(s)</b> Description
<b>A- Tables</b>	<b>The R's of NGSS: Revise, Refine, Review</b>  Life Science/Biology, NGSS  All Grade Levels	<i>Jessica Smith, Metropolitan Business High School</i>  <b>Description:</b> What does revise, refine and review look like in the NGSS classroom? I will share ideas and techniques that encourage the use of the R's of NGSS across the three dimensions of NGSS.
<b>A-</b>	<b>STEMfems: Women Transforming Our World</b>  STEM  All Grade Levels	<i>Lena Pacheco, CT Women's Hall of Fame</i>  <b>Description:</b> Women have been transforming our world through science, technology, engineering, and mathematics for centuries—yet their contributions are often overlooked. Challenge this tradition within your classroom by exploring the history of Connecticut women in STEM. Use their stories to inspire the next generation of women in STEM.
<b>A- water</b>	<b>STEM on the Move: Forensics- Coffee Shop Crime</b>  STEM  All Grade Levels	<i>Stacey Williams-Watson, EASTCONN</i>  <b>Description:</b> Explore the fascinating world of Forensics on the EASTCONN Mobile STEM Lab! This workshop will introduce teachers to the many STEM/Science curricula options on the EASTCONN Mobile STEM lab. Participants will be introduced to Forensics science as they collect, examine and analyze physical evidence from a “Coffee Shop Crime” to “discover the criminal” using the Mobile STEM Lab equipment.
<b>A- tables water</b>	<b>Teaching Next Generation Science Everyday in Elementary School Classrooms</b>  Special Education in Science  Elementary	<i>Dr. Heidi Gold-Dworkin, Little Scientists</i>  <b>Description:</b> This workshop will provide elementary school educators tools to engage their students in effective science and engineering practices as described in the "Next Generation Science Standards." How can educators seamlessly integrate the new standards into everyday science lessons? Teachers will learn how to engage young students in innovative STEM experimentation, inquiry science, and engineering practices.
<b>A-</b>	<b>A Heuristic for Developing NGSS Modeling-Based Learning Units</b>  Middle School, High School  High School Sciences	<i>TJ McKenna, UCONN Todd Campbell, UCONN</i>  <b>Description:</b> We will introduce a template to help science teachers plan for three dimensional learning through the design of modeling-based learning units. Example units will be shared..

<b>A-Trad Classroom</b>	<p><b>Using Metacognitive Strategies in the Science Classroom</b></p> <p>All, Special Education in Science</p> <p>All Grade Levels</p>	<p><i>Thomas Brown, Wethersfield High School</i></p> <p><b>Description:</b> Metacognition is the study and science of learning. While all people are different, there are common trends and patterns in how most people learn. This workshop will review a number of academic strategies and apply them directly to student science learning goals.</p>
<b>A-Tables</b>	<p><b>Paperclip Genomics</b></p> <p>Life Science/Biology, Technology in Science</p> <p>Middle School, High School</p>	<p><i>Sharon Gusky, Northwestern Connecticut Community College</i></p> <p><b>Description:</b> Participants will use paperclips to simulate PCR and Sanger Sequencing. These hands on exercise help students visualize the processes and leads them to a better understanding of genomics.</p>
<b>A-traditional</b>	<p><b>Discover How Magic Can Demonstrate the Wonders of Science</b></p> <p>All Science Subjects</p> <p>High School</p>	<p><i>Dr. Vince Mancuso, Magic for Education</i></p> <p><b>Description:</b> Magic is captivating! In the classroom, magic offers a unique strategy to visualize and illustrate key science concepts. Discover how magic tricks can be used to deliver memorable, enduring science. Easy to learn magic, immediately implemented into your curriculum. No experience necessary. Bring the wonder of magic to your classroom!</p>
<b>A-computer room</b>	<p><b>Encouraging Student Engagement through Citizen Science in the Classroom</b></p> <p>Life Science/Biology, Technology in Science, General Science</p> <p>Middle School, High School</p>	<p><i>Gemma Bartha, Springfield College</i></p> <p><b>Description:</b> Student engagement can be challenging. The key to maintaining students excitement about science may be by bringing real data collection and analysis into the classroom. Learn the importance, strategies and assessment of hands on citizen science exercises that can be adapted for a variety of classroom settings.</p>
<b>A-</b>	<p><b>STEM: Incorporating Career Connections</b></p> <p>STEM</p> <p>Middle School, High School</p>	<p><i>Ashley Pereira, Eastern Connecticut State University</i></p> <p><b>Description:</b> Same content, new focus. Learn how to incorporate STEM career exploration into your existing curriculum using examples from middle and high school courses. In this workshop, participants will learn how to increase student interest and achievement in STEM by delivering existing science content through the lens of STEM career exploration. 'Before' and 'after' examples from middle and high school courses will be shared. I will explain how I incorporated STEM career exploration into my existing curriculum, and how fellow educators can do the same. Participants are encouraged to bring a unit or lesson plan to work with in this workshop-style presentation.</p>
<b>A-Tables, Water</b>	<p><b>Climate: A Systems Model</b></p> <p>Earth/Space Science</p> <p>Middle School</p>	<p><i>Amy O'Neal, JASON Learning</i></p> <p><b>Description:</b> Understanding Climate Change, contributing factors, and the role that humans play requires that students have a general working model of climate. This goes beyond the role of seasons and sunlight. Experience a 3D lesson (condensed), and explore a collection of supporting JASON resources free to public educators/students in CT.</p>
<b>A-</b>	<p><b>PLANNING FOR HEALTH &amp; SAFETY: 3D Printers &amp; More!</b></p>	<p><i>Dr. Ken Roy, Glastonbury Public Schools</i></p>

	All Subject Areas  All Grade Levels	<b>Description:</b> The presenter will address health & safety concerns and how to rectify them with new technologies like 3D printers in the Science and/or STEM labs. The new technologies starting to show up in science/STEM labs such as 3D printers, laser cutters/engravers, and more present health and safety issues. This workshop will help teachers better plan on how to address these issues before purchasing the new technologies.
A-	<b>Conceptual Storylines: Scaffolding Student Engagement through Deliberate Planning &amp; Assessment</b>  All, Special Education in Science  Middle School, High School	<i>Jen Duell, Meriden Public Schools</i>  <b>Description:</b> Explore tools and resources to use Learning Performances to develop student conceptual storylines in phenomenon driven units and targeted 3D formative assessments. The strategies presented increase student retention, scaffold argumentation, provide a framework for unit planning and allow teachers to collect valuable data on student DCI, CCC, and SEP progression
A-	<b>Biopath - Preparing and Exciting Students about Biotech (Part 1)</b>  Life Science/Biology, Technology in Science  High School, Educational Leadership	<i>Peter Dimoulas, New Haven Public School</i> <i>Michael Kuszpa, New Haven Public Schools</i>  <b>Description:</b> Learn what skills biotech firms need from high school graduates and what educators can do in our classrooms then perform a laparoscopic surgery that promises to inspire and excite students. We will also watch the real-thing and check-out advanced surgical devices made in Connecticut!
A-	<b>Engineering Design Process in the Elementary Classroom</b>  Engineering, General Science  Elementary	<i>Sean Serafino, Monroe Public Schools</i> <i>Roseanne Haughton, Monroe Public Schools</i>  <b>Description:</b> No Time? No Materials? Great Thinkers? See how easy it is to implement the engineering design process in your elementary classroom curriculum. Sample some hands on examples of how to integrate the engineering design process aligned to NGSS.
A- tables	<b>Developing a District NGSS Transition Plan: A Workshop Preview</b>  NGSS  All Grade Levels, Educational Leadership	<i>Nicholas Balisciano, CT Science Center</i>  <b>Description:</b> The Connecticut Science Center will soon be rolling out FREE one-day workshops to help vertical teams create realistic, multi-year district transition plans that support achieving the NGSS. Join us to get a sneak peek of the workshop and provide feedback that can help districts roll out these standards!

9:15 – 10:15 Keynote & Annual Meeting (Auditorium)

## **“The Wonder - Unlocking the Power of the NGSS”**



Paul Andersen is an educational consultant and YouTube creator living in Bozeman, MT. Paul is an experienced educator having taught science in Montana for 20 years. Paul was the 2011 Montana Teacher of the Year, and was also one of four finalists for the 2011 National Teacher of the Year. In addition to teaching Paul has created hundreds of YouTube science tutorials that have been viewed millions of times by students around the world. In 2012 Paul was selected by YouTube as one of ten YouTube Edu Gurus.

Paul has provided training for thousands of students, teachers, administrators, and professors around the world. Paul’s specialties include the Next Generation Science Standards, educational technology, the flipped classroom, and effective classroom design. Paul enjoys providing meaningful professional development that can be applied immediately in the classroom. In addition to his work as a trainer Paul is an accomplished keynote speaker.

Paul graduated from Montana State University with a degree in Biology with Broadfield Science Certification. He holds a Masters of Science in Science Education. In addition to working Paul loves spending time with his family skiing and hiking in the mountains around Bozeman.

10:25 – 11:25 Breakout B1

Breakout -Room	Title Strand Grade Level	Presenter(s) Description
B1- tables	<p><b>“Finding Your Coordinates through STEAM Learning: Geocaching in Education”</b></p> <p>Earth/Space Science, Technology in Science, General Science</p> <p>All Grade Levels</p>	<p><i>Megan Strand, New England Sailing and Science Foundation</i></p> <p><b>Description:</b> Join the world’s largest scavenger hunt and enhance STEAM learning through geocaching! Geocaching uses a GPS to find a hidden object by means of GPS coordinates posted on a website, however it’s not just about finding an object. Discover how students can learn geography, technology, science and 21st century learning skills using Geocaching as a catalyst.</p>
B1- tables	<p><b>Biopath - Preparing and Exciting Students about Biotech (Part 2)</b></p> <p>Life Science/Biology</p> <p>High School</p>	<p><i>Karen Beitler, New Haven Public Schools Alina Britchi, Westbrook Public Schools</i></p> <p><b>Description:</b> Learn more about discrete skills and attributes our friends in biotech companies are seeking from graduates and what we can do in our classes. Join us for rainbow micropipetting, colorimetric paper chromatography, serial dilution, and gel electrophoresis. All materials will be available on loan for participants.</p>
B1- tables water	<p><b>1 Class Period + 1 Model System + 2 Cellular Processes= Success 4 Students!</b></p> <p>Life Science/Biology, General Science</p> <p>Middle School, High School</p>	<p><i>Tamica Stubbs, Bio-Rad</i></p> <p><b>Description:</b> Come and discover how to utilize encapsulated algae as carbon-cycling models to spark unique inquiry based investigations in your classrooms as students explore the beneficially cyclic relationships between photosynthesis and cellular respiration. They only need one CO2 tracking colormetric solution &amp; one class period to bring two cellular processes alive!</p>
B1- tables	<p><b>STEAM Coach</b></p> <p>Technology in Science</p> <p>Elementary, Middle School</p>	<p><i>Dario Soto, Hartford Public Schools</i></p> <p><b>Description:</b> We know that having a tool that can help with the development of the eight practices of science and engineering that the Framework identifies is essential for all students. Inquiry notebooking can be that key that will help students reach that deeper understanding of different concepts.</p>
B1-	<p><b>Supporting Science Teaching and Learning in Pre-K and Early Elementary: Opportunities and Challenges</b></p> <p>General Science</p> <p>Elementary, Educational Leadership</p>	<p><i>Cindy Hoisington, Educational Development Center</i></p> <p><b>Description:</b> Early elementary teachers are asked to teach science aligned to NGSS; however, many are unsure about what good pre-K, K, and Grade 1 science teaching and learning look like. This session will explore professional development strategies that promote effective science teaching and ideas for integrating it into the school day.</p>

<b>B1- tables</b>	<b>Incorporating the Science and Engineering Practices into your NGSS science classroom</b>  Engineering  Elementary, Middle School	<i>Christina Lawlor-King, CT Invention Convention</i> <i>Susan Mostowy, CT Invention Convention</i>  <b>Description:</b> EarthScope, a major geophysical instrumentation project sponsored by the National Science Foundation, is revolutionizing our view of the North American continent. This talk will cover how scientists use EarthScope data, what we've learned about the tectonics of New England, and how EarthScope results can be used in the K-12 classroom.
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10:45 – 11:45 Breakout B2

<b>Breakout -Room</b>	<b>Title</b> Strand Grade Level	<b>Presenter(s)</b> Description
<b>B2- tables</b>	<b>Scientific Inquiry in the Elementary Classroom</b>  General Science  Elementary	<i>Paul Andersen, Bozeman Science</i>  <b>Description:</b> Scientific Inquiry in the Elementary Classroom In this session Paul Andersen will guide you through the science and engineering practices while giving you concrete examples that can change elementary science classroom immediately.
<b>B2-</b>	<b>IDC Method for Managing Equations</b>  Physics  High School	<i>Peter Knipp, Luralton Hall</i>  <b>Description:</b> Introductory physics students are often confounded by the need to manipulate more than one equation when solving a single problem. A standard method exists to aid students in the specific situation of constant-acceleration motion. In this presentation I extend that method to many other areas of physics.
<b>B2- tables water</b>	<b>Engineering the Heart - A Middle School Life Science/Engineering Unit Life</b>  Life Science/Biology, Technology in Science, Engineering  Middle School	<i>John Duffy, Southington Public Schools</i> <i>Nancy Spencer, Southington Public Schools</i> <i>Wasserman Richards, Southington Public Schools</i>  <b>Description:</b> Students investigate the heart and circulatory system and discover the role of valves and the basic principles of circulation. Working with squeeze bottles and tubing along with valves made with a 3-D printer, students explore different types of valves and trouble shoot circulatory problems. Funded by the Petit Foundation.
<b>B2-</b>	<b>Toolkit for helping teachers transition to planning and implementing 3D lessons</b>  All Subject Areas, Special Education in Science  Middle School, High School	<i>Jen Ward, Meriden Public Schools</i> <i>Jen Duell, Meriden Public Schools</i>  <b>Description:</b> Are you a teacher transitioning to NGSS? Do you coach or train teachers transition to NGSS? The Transition Toolkit provides an intentional planning guide to help teachers think 3-dimensionally for units and lesson development.
<b>B2- tables</b>	<b>Man vs. Wild: Lessons on the Earth and Human Impacts</b>  Earth/Space Science, Life Science/Biology  Middle School, High School	<i>Theodora Pinou, Western Connecticut State University</i>  <b>Description:</b> Engage in thought-provoking, multi-disciplinary activities to trace human population changes and impacts on the earth and ecosystems over the past two centuries. Receive electronic curricula matched to NGSS Standards.

<b>B2- tables</b>	<p><b>STEM with Arduino</b></p> <p>Technology in Science, STEM</p> <p>Middle School, High School</p>	<p><i>Alina Britchi, Westbrook Public Schools</i></p> <p><b>Description:</b> Arduino hands on projects guarantees to excite your students. This relatively inexpensive and new technology is excellent for being used in a STEM class. It has many engineering applications and can be also be used in any Chemistry, Physics, Biology and Math class. During this presentation I will demonstrate a self-watering system for a house plant I personally built and programmed during the one week workshop at UConn. This short presentation will have you wanting to learn more about Arduino and its many real life applications.</p>
<b>B2- compute r rm</b>	<p><b>Design Thinking in the Global STEAM Classroom</b></p> <p>Technology in Science, Engineering</p> <p>Elementary, Middle School</p>	<p><i>Erin Dowd, Level Up Village</i> <i>Sam Gordon, Level Up Village</i></p> <p><b>Description:</b> Students must learn to innovate. That’s why incorporating design thinking and 21st century skills are so important. This session will follow the steps of design thinking to illuminate, through a Level Up Village course, how technology can create opportunities for global connection and collaboration for students to become global citizens.</p>
<b>B2 - tables</b>	<p><b>Demystifying the NGSS with STEMscopes</b></p> <p>Technology in Science, Engineering, General Science</p> <p>All Grade Levels, Educational Leadership</p>	<p><i>Kristan Burkman, Accelerate Learning</i></p> <p><b>Description:</b> Through collaborative discussion, we will unravel the architecture of the NGSS and see how STEMscopes meets the need for 3 dimensional learning through engineering, project-based learning, hands-on investigations and much, much more. We have worked collaboratively with teachers to build a program that meets all of the NGSS standards with authentic and engaging inquiry-based lessons.</p>
<b>B2 - tables</b>	<p><b>A Lesson Framework for the Next Generation</b></p> <p>Middle School, High School</p> <p>All Subject Areas, Special Education in Science</p>	<p><i>Dr. Cindy Kern, Quinnipiac University</i></p> <p><b>Description:</b> Using the three-dimensions to support learner engagement and sense-making to develop an explanation for a phenomenon is central to the NGSS. 5-Featured Dynamic Inquiry Enterprise (5-DIE), a lesson framework, provides guidelines and scaffolds intended to promote critical thinking, problem-solving, and science literacy while supporting the enactment of 3-D instruction.</p>



11:55 – 12:15 Breakout C1

<b>Breakout -Room</b>	<b>Title</b> Strand Grade Level	<b>Presenter(s)</b> Description
C1 -	<b>Scientific Inquiry in the Secondary Classroom</b>  General Science  Secondary	<i>Paul Andersen, Bozeman Science</i>  <b>Description:</b> Scientific Inquiry in the Secondary Classroom In this session Paul Andersen will guide you through the science and engineering practices while giving you concrete examples that can change secondary science classroom immediately.
C1 - <b>tables</b>	<b>"Land Sailors: Sailing through Engineering Core Ideas in NGSS"</b>  Earth/Space Science, Technology in Science, Engineering, General Science  All Grade Levels	<i>Megan Strand, New England Science &amp; Sailing Foundation</i>  <b>Description:</b> Incorporate engineering into your classroom using a multi-disciplinary lesson! You will become the students as you design, engineer, and compete in teams against fellow classmates as you build a land sailor that harnesses the power of wind. As you compete you'll be incorporating the Engineering Core Ideas in NGSS.
C1 - <b>tables water</b>	<b>Project Learning Tree</b>  Life Science/Biology, General Science  All Grade Levels	<i>Beth Bernard, Project Learning Tree</i> <i>Emma Kravet, Project Learning Tree</i>  <b>Description:</b> his program will includes fun, hands-on, outdoor education activities from the Project Learning Tree PreK-8 guide. PLT is a national curriculum designed to help teachers use the outdoors for learning. Curriculum is aligned with Common Core, NGSS and C3 standards.
C1 -	<b>Leading and Supporting Your Schools and Teachers for the Transition to NGSS</b>  Educational Leadership  All Grade Levels	<i>Julie Christianson, CREC</i>  <b>Description:</b> Leaders of schools and districts face many challenges transitioning to NGSS, and during this session, we review best practices for implementation, some challenges, and methods of supporting teachers and students.
C1 - <b>table water</b>	<b>Using Phenomena In (and from) Nature to Strengthen Elementary Science Instruction</b>  Life Science/Biology, General Science  Elementary	<i>Marjorie Porter, Regional School District 13</i> <i>Susan Michael, Regional School District 13</i>  <b>Description:</b> Wondering where to find appropriate science phenomena to support the NGSS in your K-6 classroom? Look no further than your schoolyard! This session will provide valuable strategies and learning tools for incorporating natural events and materials in ways that will encourage learners to dig deeper and strengthen their understanding.
C1 - <b>tables water</b>	<b>Ok, I have a phenomenon... now what?</b>  All Subject Areas  High School	<i>Jonathan Corbett, Region 4 Public Schools</i>  <b>Description:</b> What do the Practices "look like" in the classroom? Walk away with sample templates teachers can try in the classroom tomorrow to NGSS-ify existing lessons or develop new ones. These simple artifacts can be used in multiple courses, units, and DCIs. Even engineering!
C1 - <b>tables</b>	<b>A Case of Unintentional Overdose</b>  Life Science/Biology, Chemistry, General Science, Anatomy & Physiology	<i>Dorothea Panayotou, Newton Public Schools</i>  <b>Description:</b> Follow the case of a teen who has taken an unintentional overdose of over-the-counter (OTC) medicine. Conduct simulated lab

	High School, Educational Leadership	tests, interpret drug facts labels, and learn how improper use of OTC medicines may cause serious health problems. Learn about free online resources from University of Rochester's "Medicines and Me" project.
<b>C1 -</b>	<b>Putting Data to Work: Using Music to Increase Engagement through Data Sonification</b>  Earth/Space Science, General Science  Middle School, High School	<i>Carrie DePetris, Meriden Public Schools</i>  <b>Description:</b> Learn how students can compose music in order to more deeply analyze data. Project examples include analysis of climate change data. No musical experience needed! Participants will learn how to implement a classroom project to deepen students' understandings and analysis of data sets through a medium that is universally relevant: music.

### 12:30 – 1:30 Breakout C2

<b>Breakout -Room</b>	<b>Title</b> Strand Grade Level	<b>Presenter(s)</b> Description
<b>C2 -</b>	<b>Explore Globally Apply Locally</b>  Earth/Space Science, Life Science/Biology, Technology in Science, General Science  Middle School	<i>Alicia Collins, New Canaan Public Schools</i> <i>Melinda Meyer, New Canaan Public Schools</i>  <b>Description:</b> Join our engaging workshop to learn how a unique approach to professional learning, Funds for Teachers, led to the development of a dynamic watershed unit for our students in which they viewed themselves as citizens of the world and active stewards in the preservation and conservation of resources.
<b>C2 - tables</b>	<b>Seed Dispersal Engineering Lab - Reinventing lessons for NGSS</b>  Life Science/Biology, Engineering  Middle School, High School	<i>Valerie Cournoyer, Waterbury Public Schools</i>  <b>Description:</b> Seed dispersal by wind is a phenomenon that most students have experienced by blowing dandelion seeds off their stems or watching maple seeds helicopter to the ground. Using engineering and design principles you will create your own far flying seed. The lesson includes a competition, data collection and redesign opportunities.
<b>C2 - tables</b>	<b>Maximize Your MakerSpace through Design Thinking and the Wallingford 3D Learning Program</b>  Engineering  All Grade Levels	<i>Kate O'Donnell, Wallingford Public Schools</i> <i>Rob Kovi, Wallingford Public Schools</i>  <b>Description:</b> Hear how students from kindergarten through high school can apply design thinking and Wallingford 3D Learning in a MakerSpace to provide an authentic application of the Next Generation Science Standards ETS.
<b>C2 - tables</b>	<b>Blinding Them With Science: Teaching Climate Change Amidst Political Controversies</b>  Earth/Space Science, Life Science/Biology, Technology in Science, General Science  Middle School, High School	<i>Sarah Faulkner, Hartford Public Schools</i>  <b>Description:</b> Climate change is a complex, confusing, and controversial topic to teach. This session shares one successful approach used in 8th grade, easily adaptable to HS, and built on a story line wrapped around bundled NGSS disciplinary core ideas. Participants are encouraged to bring their own materials to share.

<p><b>C2 - tables</b></p>	<p><b>Shifting Towards STEM Inquiry</b></p> <p>STEM</p> <p>All Grade Levels</p>	<p><i>Heather Lichtlin, CT Science Center</i></p> <p><b>Description:</b>With Connecticut's adoption of the Next Generation Science Standards (NGSS), traditional classroom instruction will have to make a shift towards more inquiry-based instruction, however, there's no reason to completely start from scratch. There are many strategies that can help us shift our existing STEM lessons toward a more inquiry-based approach. Let's find out how minor alterations in our lessons can lead to powerful transformations in student learning.</p>
<p><b>C2 - tables</b></p>	<p><b>Hands-on, NGSS-aligned, STEM Curriculum for Elementary Students: PLTW Launch</b></p> <p>Engineering, General Science</p> <p>Elementary, Educational Leadership</p>	<p><i>Carolyn Malstrom, Project Lead the Way</i></p> <p><b>Description:</b> Empower your elementary students to become creative, problem-solvers through compelling activities, projects, and problems that relate to the world around them. Complete a team design challenge related to structure and function that can be used at all grade levels by varying the design criteria or constraints. Learn about PLTW Launch.</p>
<p><b>C2- tables water</b></p>	<p><b>Safer Chemistry: Green Chemistry Replacement Labs</b></p> <p>Chemistry</p> <p>High School</p>	<p><i>Jennifer Babbin, Beyond Benign</i></p> <p><b>Description:</b> Are you interested in teaching core chemistry content with safer materials? Many traditional labs use chemicals that pose hazards to health and the environment. Learn how to "green" experiments and use inexpensive materials that are safer to handle, store, and dump down the drain.</p>

<b>Breakout -Room</b>	<b>Title</b> Strand Grade Level	<b>Presenter(s)</b> Description
D-	<b>Biology Teachers Talking NGSS</b>  Earth/Space Science, Life Science/Biology, General Science  High School	<i>Jacob Fricker, Easton, Redding &amp; Region 9 Public Schools</i> <i>Catherine Cheng, Easton, Redding &amp; Region 9 Public Schools</i>  <b>Description:</b> Discuss with Biology teachers their approach to NGSS in teacher- and student-mode. Unit / lesson / assessment / planning ideas, modified CAPT labs.
D-	<b>A Fun Method To Determine An Eastern Painted Turtle Population</b>  Life Science/Biology  Elementary, Middle School	<i>Bill Powers, Goodwin Conservation Center</i>  <b>Description:</b> A discussion of a Master Naturalist's three years of observations by kayak of Eastern Painted Turtle behavior. What are optimal conditions to view and count the turtles? How does their population move about during the year? What is the special relationship between the turtles and Red-winged Blackbirds nesting in Cattails?
D-	<b>Teaching Practices for Supporting Whole-Class Sensemaking Central to Equitable Three-Dimensional Learning</b>  Life Science/Biology, Chemistry, Physics, General Science  Middle School, High School	<i>Todd Campbell, University of Connecticut</i> <i>Laura Rodriguez, University of Connecticut</i>  <b>Description:</b> We will introduce 5 teaching practices that can serve as a sequential set of instructional scaffolds to support task-based whole-class sensemaking supportive of equitable three-dimensional instruction.
D- tables	<b>Using Graphs as Phenomena to Drive Student Inquiry into Seasonal Variation in Temperature</b>  Earth/Space Science  Middle School	<i>Daniel Cortright, Westport Public Schools</i>  <b>Description:</b> Graphs of average monthly temperatures at different locations on Earth can be used as phenomena to effectively guide an EQulP rubric-inspired unit on seasonal temperatures.
D-	<b>Using HHMI BioInteractive Resources to Support NGSS Phenomena Anchored Instruction</b>  Life Science/Biology  Middle School, High School	<i>Valerie May, Woodstock Academy</i>  <b>Description:</b> The Standards are here - time to construct the storylines! Phenomena anchor coherent conceptual sequences helping students to develop understanding and skills. Participants will be introduced to the Lactase Persistence – Gene to Phenotype conceptual storyline from phenomenon introduction to assessment of NGSS performance expectations. Free BioInteractive resources will be shared.
D- tables	<b>Robots through a STEM lens</b>  Technology in Science, Engineering, Special Education in Science  Elementary	<i>Robyn McKenney, Waterford Public Schools</i> <i>Whitney Wadecki, Waterford Public Schools</i>  <b>Description:</b> Discover how elementary students interact with a variety of robots to develop STEAM skills, perseverance, and coding fluency. Participants will learn how the engagement and excitement of robot-play is leveraged to teach important skills such as collaboration,

		problem-solving, and communication. Connect tech tools to everyday classroom experiences and curricula.
D-	<p><b>So, Are You Saying.....? Strategies for Productive Talk Circles</b></p> <p>All Subject Areas</p> <p>Elementary</p>	<p><i>Kristen Sinoradzki, Windham Public Schools</i>  <i>Carolina Mendez, Windham Public Schools</i>  <i>Pat McMahan, Windham Public Schools</i></p> <p><b>Description:</b> What do productive talk circles look like in K-4 classrooms? In this workshop, you will learn strategies teachers use to implement and support a culture of productive talk in the classroom. Through videos, handouts and personal experiences, participants will walk away eager to try productive talk circles across disciplines.</p>
D- tables water	<p><b>Exploring Smithsonian Science in the Classroom</b></p> <p>Life Science/Biology, Physics, Engineering, General Science</p> <p>Elementary</p>	<p><i>Marilyn Decker, Carolina Biological</i>  <i>Knansie Beth Griffing, Carolina Biological</i></p> <p><b>Description:</b> One of the challenges for districts as they transition to the new Connecticut science standards is the selection and implementation of instructional materials that meet these new standards. The Smithsonian Science Education Center has developed new science and technology units that meet these standards. Participants will engage in activities from 5 of these new elementary units.</p>
D-	<p><b>Keeping the 3rd-dimension in focus: Integrating Crosscutting Concepts into Everyday Instruction</b></p> <p>Earth/Space Science, Life Science/Biology, Technology in Science, Chemistry, Physics, Engineering, General Science, Special Education in Science</p> <p>All Grade Levels</p>	<p><i>Tara O'Neill, Meriden Public Schools</i>  <i>Carrie DePetris, Meriden Public Schools</i></p> <p><b>Description:</b> Examine how to scaffold students from hidden Crosscutting Concepts to viewing content through the explicit lenses of the CCCs. Initial implementation of the NGSS tends to focus on the Disciplinary Core Ideas and Science and Engineering Practices, while the Crosscutting Concepts can often get left behind. Crosscutting concepts provide an equalizing opportunity for students, as they offer a mechanism for seeing and experiencing our natural world. We will discuss and analyze universal integration of the CCCs in daily lessons, learning targets and routine instruction.</p>
D- tables	<p><b>Becoming a Teacher Leader for NGSS Implementation or Personal Growth</b></p> <p>Educational Leadership</p> <p>All Grade Levels</p>	<p><i>Gail Emilsson, CT Science Center</i></p> <p><b>Description:</b> This session will introduce some facilitation tools and techniques that teachers can use to organize professional learning communities to help with NGSS implementation. NGSS expertise is NOT required but a desire to grow IS! Teacher leaders create a space for collaborative group learning while also growing themselves.</p>
D- compute r m	<p><b>Teaching with Circuits: No Engineering Degree Required</b></p> <p>Technology in Science, Engineering, General Science</p> <p>Middle School, High School</p>	<p><i>Rebecca Abramson, Western New England University</i></p> <p><b>Description:</b> Interested in adding circuits and coding to your classroom? Not sure where to start? You don't need to be an engineer to teach it! Learn from a Maker the basics of coding with free online resources and low-cost, reusable hardware.</p>
D-	<p><b>Zoology for Kids with Animal Embassy</b></p> <p>Life Science/Biology, Wildlife Conservation, Diversity</p>	<p><i>Chris Evers, Animal Embassy</i></p> <p><b>Description:</b> Discover how live Animal Ambassadors engage students and bring science curriculum to life with a diversity of animals from</p>

	All Grade Levels	around the globe. Animal Embassy will uncover some of the mysteries of nature as we explore habitats, adaptations, classifications, biodiversity and more. We'll interact with animals such as a Solomon Islands Monkey-Tailed Skink, a South American Chinchilla, a Spectacled Owl, an African Bullfrog, a Carpet Python and more!
<b>D- tables</b>	<b>Exploring Climate Change: A History of Earth's Atmosphere</b>  Earth/Space Science  Middle School	<i>Stephanie Brunnett, Lab-Aids</i>  <b>Description:</b> This session will feature selected activities from the Weather and Climate middle school unit from the Science Education for Public Understanding Program (SEPUP) from the Lawrence Hall of Science at UC Berkeley. Participants will take the role of the student as they examine the relative amounts of carbon dioxide and oxygen gases at different times in earth's history, and the role of living organisms in determining the composition of the atmosphere. We will then use an online interactive to analyze historical data related to climate change. Participants will receive a sample set of materials.
<b>D- tables</b>	<b>Engaging in Argument from Evidence- Using Technology to support debating scientific issues in the classroom</b>  Earth/Space Science, General Science  Middle School, High School	<i>Elizabeth Hagymasi, Canton Public Schools</i> <i>Marsha Jorgensen, Canton Public Schools</i>  <b>Description:</b> We will explore different tools we use for supporting debates on contemporary scientific issues in our classrooms. We will also look at the steps we use to support students in preparation for the debate. We will share rubrics and materials we use to facilitate developing informed opinions.
<b>D-</b>	<b>Sharing the Wealth-Understanding the Collaborative Efforts Behind CRECs Curriculum Consortium</b>  Educational Leadership  All Grade Levels	<i>Jaime Rechenberg, CREC</i>  <b>Description:</b> Learn about the collegial and collaborative nature of CRECs curriculum consortium and the outcomes of the curriculum writing process.  Participants will learn about the structure, timelines, and outcomes associated with CRECs curriculum consortium.

**3:00 Return to the Exhibitor Hall to collect your Prizes!**

## Sessions at a Glance - WILL UPDATE ONCE ROOMS ASSIGNED

Breakout-Room	Title	E l e m	M i d l e	H i g h	Primary Strand
A-	The R's of NGSS: Revise, Refine, Review	x	x	x	Life Science/Biology
A-	STEMfems: Women Transforming Our World	x	x	x	STEM
A-	STEM on the Move: Forensics- Coffee Shop Crime	x	x	x	STEM
A-	Teaching Next Generation Science Everyday in Elementary School Classrooms	x			Special Education in Science
A-	A Heuristic for Developing NGSS Modeling-Based Learning Units		x	x	High School Sciences
A-	Using Metacognitive Strategies in the Science Classroom	x	x	x	All
A-	Paperclip Genomics		x	x	Life Science/Biology
A-	Discover How Magic Can Demonstrate the Wonders of Science			x	All
A-	Encouraging Student Engagement through Citizen Science in the Classroom		x	x	Life Science/Biology
A-	\$TEM: Incorporating Career Connections		x	x	STEM
A-	Climate: A Systems Model		x		Earth/Space Science
A-	PLANNING FOR HEALTH & SAFETY: 3D Printers & More!	x	x	x	All
A-	Conceptual Storylines: Scaffolding Student Engagement through Deliberate Planning & Assessment	x	x	x	Special Education in Science
A-	Biopath - Preparing and Exciting Students about Biotech (P1)			x	Life Science/Biology
A-	Engineering Design Process in the Elementary Classroom	x			Engineering
A-	Developing a District NGSS Transition Plan: A Workshop Preview	x	x	x	NGSS
B1-	"Finding Your Coordinates through STEAM Learning: Geocaching in Education"	x	x	x	Earth/Space Science
B1-	Biopath - Preparing and Exciting Students about Biotech (P2)			x	Life Science/Biology
B1-	1 Class Period + 1 Model System + 2 Cellular Processes= Success 4 Students!		x	x	Life Science/Biology
B1-	STEAM Coach	x	x		Technology in Science
B1-	Supporting Science Teaching and Learning in Pre-K and Early Elementary: Opportunities and Challenges	x			General Science
B1-	Incorporating the Science and Engineering Practices into your NGSS science classroom	x	x		Engineering
B2-	Scientific Inquiry in the Elementary Classroom	x			General Science
B2-	IDC Method for Managing Equations			x	Physics
B2-	Engineering the Heart - A Middle School Life Science/Engineering Unit Life		x		Engineering, Life Science
B2-	Toolkit for helping teachers transition to planning and implementing 3D lessons		x	x	All subject areas
B2-	Man vs. Wild: Lessons on the Earth and Human Impacts		x	x	Earth/Space Science
B2-	STEM with Arduino		x	x	Technology in Science/STEM
B2-	Design Thinking in the Global STEAM Classroom	x	x		Technology In Science/Engineering
B2-	Demystifying the NGSS with STEMscopes	x	x	x	Technology In Science/Engineering
B2-	A Lesson Framework for the Next Generation		x	x	All Subject Areas
C1-	Scientific Inquiry in the Secondary Classroom			X	General Science
C1-	"Land Sailors: Sailing through Engineering Core Ideas in NGSS"	x	x	x	Earth/Space Science
C1-	Project Learning Tree	x	x	x	Life Science/Biology

C1-	Leading and Supporting Your Schools and Teachers for the Transition to NGSS	x	x	x	Educational Leadership
C1-	Using Phenomena In (and from) Nature to Strengthen Elementary Science Instruction	x			Life Science/Biology
C1-	Ok, I have a phenomenon... now what?			x	All Subject Areas
C1-	A Case of Unintentional Overdose			x	Life Science/Biology, Chem, Anatomy
C1-	Putting Data to Work: Using Music to Increase Engagement through Data Sonification		x	x	Earth/Space Science
C2-	Explore Globally Apply Locally		x		All Subject Areas
C2-	Seed Dispersal Engineering Lab - Reinventing lessons for NGSS		x	x	Life Science/Biology, Engineering
C2-	Maximize Your MakerSpace through Design Thinking and the Wallingford 3D Learning Program	x	x	x	Engineering
C2-	Blinding Them With Science: Teaching Climate Change Amidst Political Controversies		x	x	All Subject Areas
C2-	Shifting Towards STEM Inquiry	x	x	x	STEM
C2-	Hands-on, NGSS-aligned, STEM Curriculum for Elementary Students: PLTW Launch	x			Engineering/Educational Leadership
C2-	Safer Chemistry: Green Chemistry Replacement Labs			x	Chemistry
D-	Biology Teachers Talking NGSS			x	Life Science/Biology
D-	A Fun Method To Determine An Eastern Painted Turtle Population	x	x		Life Science/Biology
D-	Teaching Practices for Supporting Whole-Class Sensemaking Central to Equitable Three-Dimensional Learning		x	x	All Subject Areas
D-	Using Graphs as Phenomena to Drive Student Inquiry into Seasonal Variation in Temperature		x		Earth/Space Science
D-	Using HHMI BioInteractive Resources to Support NGSS Phenomena Anchored Instruction		x	x	Life Science/Biology
D-	Robots through a STEM lens	x			Technology in Science, Engineering
D-	So, Are You Saying.....? Strategies for Productive Talk Circles	x			All Subject Areas
D-	Exploring Smithsonian Science in the Classroom	x			All Subject Areas
D-	Keeping the 3rd-dimension in focus: Integrating Crosscutting Concepts into Everyday Instruction	x	x	x	All Subject Areas
D-	Becoming a Teacher Leader for NGSS Implementation or Personal Growth	x	x	x	Educational Leadership
D-	Teaching with Circuits: No Engineering Degree Required		x	x	Technology in Science/Engineering
D-	Zoology for Kids with Animal Embassy	x	x	x	Life Science/Biology
D-	Exploring Climate Change: A History of Earth's Atmosphere		x		Earth/Space Science
D-	Engaging in Argument from Evidence- Using Technology to support debating scientific issues in the classroom		x	x	Earth/Space Science
D-	Sharing the Wealth-Understanding the Collaborative Efforts Behind CRECs Curriculum Consortium	x	x	x	Educational Leadership