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**X-23**                      **Saturday**    **9:00 A.M. - 1:30 P.M.**                      **Radisson Riverside**                      Hands On

**Chemistry Institute: Be Phenomenal in Your Units!**

Gr. 9 - 12 Teachers    Gr. 6 - 8 Teachers

Chemistry

CTLE Approved: The institute will center around discussions and activities related to incorporating phenomena into instruction and unit planning. Each activity will include all three-dimensions of the NYSSLS. In addition, research-based strategies will be discussed for incorporating methods of formative assessment based on bundling performance expectations and creating learning progressions.

Anchoring and investigative phenomena will be introduced as a vehicle for developing coherent instructional units.

Multiple major topics in chemistry, including redox, equilibrium, and gases, will be used as examples.

Sessions A-22, 23 & B-22, 23 & L-51

*Matt Christiansen, Islip Union Free School District; Sarah English NYSMT, Sweet Home High School; Stephanie O'Brien, Commack High School; Millisa Albano, Southwestern High School; Angela Fuller, Greece Central School District; Michelle Hinchliffe, Lewiston-Porter High School*

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**X-27**                      **Saturday**    **9:00 A.M. - 1:30 P.M.**                      **Radisson Riverside**                      Hands On

**Physics, Applied Sciences & Engineering Institute**

Gr. 9 - 12 Teachers    Gr. 6 - 8 Teachers

Physics Applied Sciences

CTLE Approved: All participants will engage in making sense of phenomena by experiencing a model hands-on 3-D lesson that demonstrates a shift in pedagogy.

From there, you will be broken into smaller groups focusing on the crosscutting concept of energy in one of the following disciplines: physics, ecosystems in environmental science, engineering or forensic car crashes.

You will be taken through lessons structured around gathering, reasoning, and communicating and will be given handouts of these lessons.

Finally, you will use a template to develop your own short lesson with the help of Subject Area Representatives and other participants.

This collaboration will help improve everyone's instruction and ultimately student achievement. Participants will have an opportunity to discuss:

- student assessment
- supportive classroom environment for learning
- opportunities to differentiate
- engaging parent support
- use of technology and media where appropriate.

Each person will walk away with resources to develop your own NYSSLS aligned lesson.

Sessions A-26, 27 & B-26, 27 & L-55

*Karin Cyganovich, Cheektowaga Central Schools; Sonja Anderson NYSMT; Joseph Zawicki, Physics SAR NW; Sarah Fink NYSMT, Applied Science SAR NE; Jason Lindley, Physics SAR Westchester; Amy Rotoli, Physics SAR CW; Michael Jabot, Physics & Applied Science SAR SW; Michael Jabot, Physics & Applied Science SAR SW*

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**X-40**                      **Saturday**    **9:00 A.M. - 1:30 P.M.**                      **Hyatt Regency**    Hands On

**Intermediate Institute**

Gr. 6 - 8 Teachers

Intermediate Level

CTLE Approved: This Institute will provide intermediate level teachers a choice of five different workshops to assist in the transition to the NYSSLS. There will be workshops addressing pedagogical practices as well as an introduction to the NYSSLS standards for those who are not yet familiar with or comfortable reading them. Great for those who are looking to start implementing new teaching strategies aligned to the NYSSLS.

We will presenting five concurrent workshops which will be repeated in each session (A and B).

## 1) Phenomenal Phenomena

Presenters: Karen Ralph (Westchester) and Rob Wardell (Northwestern)

## 2) Modeling in 3D

Presenters: Rebecca Shuman (Northeastern) and Ashley Bloch (Suffolk)

## 3) CER--Getting Your Students to Reason with Evidence

Presenters: Jennifer Gecewicz (Eastern) and Mary Lobello (NYC DAL)

## 4) The Beginners Guide to the NYSSLS

Presenters: Cinnamon Marchione (Mohawk Valley) and Michael Pray (Central Western)

## 5) Question Formulation Technique

Presenter: Susan Cyrulik (Western)

Luncheon Speaker: Michael DiSpezio ,Houghton Mifflin Harcourt - "Retooling Science for 21st Century Standards".

Sessions A-40, 41, 42, 43, 46 & B-40,41, 42, 43 ,46 & L-52

*Mary Lobello, IS125Q; Ashley Bloch NYSMT; Susan Cyrulik; Jennifer Gecewicz; Cinnamon Marchione; Michael Pray; Karen Ralph; Karen Ralph*

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**Y-40**                      **Sunday**                      **9:00 A.M. - 1:30 P.M.**                      **Hyatt Regency**    Hands On

**Elementary Science Institute**

Gr. K - 5 Teachers College

Elementary Level Professional Development

CTLE Approved: In each of the three sessions that make up the Elementary Science Institute, participants will collaborate to improve instruction, content knowledge, and student achievement. They will also share lesson modification ideas emphasizing developmentally appropriate instructional strategies for the complete range of diverse learners found in today's classroom, including ELL. Current research-based strategies will be used.

The three sessions described below will be offered concurrently from 9 – 10:15 a.m. and then repeated from 10:30 – 11:45 p.m. Participants may choose to attend two of the three sessions offered, though each room will have a maximum of 30 participants.

The Elementary Science Luncheon, beginning at noon, will conclude the Institute. Participants will be registered for the Elementary Luncheon hosted by Elementary DAL, Duane Willsey.

## 1.) Making Light of Communication, the Phenomena of Light Waves

Presented by Katy Perry, Elementary SAR for Eastern Section, Mari Scardapane, Elementary SAR for Suffolk Section

## 2.) Exploring Structure, Function &amp; Information Processing

Presented by Mary Kay Flett, Elementary SAR for Western Section and Karen Huffman, DAL for Colleges

## 3.) Engineering Design for Elementary

Presented by Antonietta Quinn, Elementary SAR for Central Western, Mary Thomas, Monroe 2 Orleans BOCES

Sessions E-40, 41, 42 & F- 40, 41, 42 & L-62

*Mary Thomas, Monroe 2 Orleans BOCES; Antonietta Quinn, Monroe 2 Orleans BOCES; Katy Perry, STANYS Elem SAR; Mari Scardapane, STANYS Elem SAR; Mary Kay Flett, STANYS Elem SAR; Karen Huffman, STANYS DAL for Colleges*

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**Y-51**                      **Sunday**                      **7:00 A.M. - 12:00 P.M.**                      **Hyatt Regency**                      Hands On

**Earth Science Institute**

CTLE Approved: Welcome to the first ever Earth Science Institute.

Participants in this institute will not only gain new knowledge of content, but also teaching methods from the Earth Science Subject Area Representatives from around the state.

Participants will also earn CTLE credit, so crucial to new teachers' portfolios.

KEYNOTE SPEAKER: Margie Turrin, Education Coordinator at Columbia University's Lamont Doherty Earth Observatory, "Tracking Antarctica's Ice Shelves"

Our keynote speaker will be speaking about "Tracking Antarctica's Ice Shelves". Lamont's polar scientists are back in Antarctica on missions to study the continent's ice.

Ice shelves like the Ross Ice Shelf reach out over the ocean from the massive ice sheet covering the continent, and researchers are exploring how changes in climate will affect them.

Flying over the ice and using remote sensing equipment, they will continue work done in previous years to help gauge the stability of Antarctica's ice sheets.

After the breakfast, participants will break out into workshops in two different sessions presented by the Earth Science Subject Area Representatives (SAR).

After the SARs share their knowledge and expertise, we will meet again to review Best Practices; Favorite Lessons with the new New York State Learning Standards.

Lesson plans are welcome for review and discussion.

Sessions D-51, E-06, 11, 12, 14 & F-06

*Rosemarie Sanders, DAL Earth Science; Ken Abbott, Nassau Section; Renee Aubry, Westchester Section; Andrew Boyd, Mohawk Valley Section; Stephanie Burns, Suffolk Section; Patrick Callahan, New York City; Kelli Grabowski NYSMT, Southwestern Section; Kelli Grabowski NYSMT, Southwestern Section; James Kilroy, North Central Section; Christine Mooney, North Central Section; Laura Van Glad, Eastern Section*

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**Y-52**                      **Sunday**                      **7:00 A.M. - 12:00 P.M.**                      **Hyatt Regency**                      Hands On

**Biology Institute**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Biology Intermediate Level

CTLE Approved: Looking for a strand of biology-based professional development? Interested in exploring some ways to address the pedagogical shift of NYSSLS? Join us for the first Biology Institute which includes the Biology Breakfast!

Participants will walk through three research-based pedagogical strategies to complete 3-dimensional biology lessons.

Lessons will address the diverse needs of all students and will promote an equitable learning environment.

Participants will have the opportunity to collaborate to improve instruction, student achievement, and to begin building their own 3-D lessons.

Sessions D-52, E-07, 08, 09, 10 & F-07, 08, 09, 10

*Paula Ferneza NYSMT, North Collins Jr.-Sr. High School; Cookie Barker NYSMT; Kelly Ryan, SAR - Biology, Eastern; Lois Piscitelli, SAR - Biology, Southwestern; Joe Bonanno, SAR - Biology, Central; Jean Ann Kohn, DAL - Science Special Education; Caitlin Ullock NYSMT, SAR - Central Western*

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**D-51**                      **Sunday**                      **7:00 A.M. - 9:00 A.M.**                      **Hyatt Regency**                      Hands On

**Earth Science Breakfast**

CTLE Approved: KEYNOTE SPEAKER: Margie Turrin, Education Coordinator at Columbia University's Lamont Doherty Earth Observatory, "Tracking Antarctica's Ice Shelves"

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**D-52**                      **Sunday**                      **7:00 A.M. - 9:00 A.M.**                      **Hyatt Regency**                      Hands On

**Biology Breakfast**

CTLE Approved: Join your fellow biology teachers from around the state for professional development featuring a presentation by Dr. Joe Levine and an opportunity to network over breakfast.

<b>H-52</b>	<b>Monday</b>	<b>7:00 A.M. - 8:00 A.M.</b>	<b>Hyatt Regency</b>	Hands On
<b>The STANYS Breakfast</b>				
All levels		Professional Development		
CTLE Approved: Meet your Executive and Conference Committees. Learn and discuss the initiatives STANYS has taken this year to help you with the new NYS P-12 Science Learning Standards, provide professional development and create a better experience for our members. We will be sharing our vision for the future of STANYS and gathering your ideas for the organization. We invite you to learn more about what we do between conferences, give us feedback and learn ways you can become more involved.				
<i>Helen Pashley, P/NW BOCES; Lisa Brosnick NYSMT, STANYS</i>				
<b>L-51</b>	<b>Saturday</b>	<b>12:00 P.M.</b>	<b>Hyatt Regency</b>	Lecture/Demo
<b>Chemistry Luncheon</b>				
All levels		Chemistry		
CTLE Approved: Come, join the Chemistry DAL and SARs for lunch after the Chemistry Institute! Additional information regarding the NYS Science Learning Standards will be discussed, and all participants will have the opportunity to play chemistry trivia at the end of the luncheon.				
<i>Matt Christiansen, Islip Union Free School District</i>				
<b>L-52</b>	<b>Saturday</b>	<b>12:00 P.M.</b>	<b>Hyatt Regency</b>	Hands On
<b>Intermediate Luncheon</b>				
Gr. 6 - 8 Teachers		Intermediate Level		
CTLE Approved: Luncheon Speaker: Michael DiSpezio ,Houghton Mifflin Harcourt - "Retooling Science for 21st Century Standards".				
<i>Mary Lobello, IS125Q; Ashley Bloch; Susan Cyrulik; Jennifer Gecewicz; Cinnamon Marchione; Michael Pray; Karen Ralph; Karen Ralph</i>				
<b>L-55</b>	<b>Saturday</b>	<b>12:00 P.M.</b>	<b>Hyatt Regency</b>	Hands On
<b>Physics, Applied Sciences &amp; Engineering Luncheon</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Applied Sciences Physics		
CTLE Approved: Come enjoy some games, an engineering challenge, good food and company at the 2017 Physics, Applied Sciences & Engineering luncheon. Director's at Large, Karin Cyganovich & Sonja Anderson will lead the activities. In addition, there will be a short, crowd pleasing presentation by Stan Skotnicki. All science teachers are welcome to join us.				
<i>Karin Cyganovich, Cheektowaga Central Schools; Sonja Anderson NYSMT</i>				
<b>L-61</b>	<b>Sunday</b>	<b>12:00 P.M.</b>	<b>Hyatt Regency</b>	
<b>Retiree Luncheon</b>				
<b>L-62</b>	<b>Sunday</b>	<b>12:00 P.M.</b>	<b>Hyatt Regency</b>	Lecture/Demo
<b>Elementary Science Luncheon</b>				
Gr. K - 5 Teachers Informal Educators		Elementary Level Special Ed./ELL		
CTLE Approved: The DAL and various BOCES representatives will share "What BOCES has to Offer:" for your elementary science curricula. This one stop shopping opportunity will give you useful information to plan for science units that meet the needs of all learners while fitting the structure of the new standards.				
<i>Duane Willsey, Madison Central School District</i>				
<b>A-01</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	HandsOn
<b>Is It an Observation or an Inference?</b>				
Gr. K - 5 Teachers Gr. 6 - 8 Teachers		Elementary Level Intermediate Level		
Differentiating between observations and inferences can be difficult for students. Through the use of scenarios and interactive protocols, these concepts can be explored in an engaging way. This learning opportunity is cross-curricular, honing in on the important difference between observation and inference in both science and ELA.				
<i>Catherine Sedota, Daemen College TLQP Program; Melanie Benham, Daemen College TLQP Program/Buffalo Public Schools; Tris D'Angelo, Daemen College TLQP Program/Notre Dame Academy; Lenore Patrone, Daemen College TLQP Program/Catholic Academy of West Buffalo; Mary Serwon, Daemen College TLQP Program/ Buffalo City Honors</i>				

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**A-02 & B-02**      **Saturday**    **9:30 A.M.-10:30 A.M.**      **Conv Ctn**      Hands On

**HHMI Presents: Digging Deep with Data**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers      Biology Intermediate Level  
 CTLE Approved: This session will introduce participants to several recent activities from HHMI Biointeractive that focus on the use of real-world data to help students answer questions in the fields of evolution and conservation biology. To participate, you will need to bring your laptop for Internet access.  
*David Knuffke, Deer Park UFSD*

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**A-03 & B-03**      **Saturday**    **9:30 A.M.-10:30 A.M.**      **Conv Ctn**      Hands On

**Starla's Hands-On Body Systems: How the Digestive System Feeds the Body**  
 All levels Gr. 9 - 12 Teachers      Biology Applied Sciences  
 Hear about successful and affordable hands-on methods that help students learn complicated material faster. We'll explore teaching techniques for guiding students through the building of the hepatic and gastrointestinal system. You'll also receive activities that apply pathology and a student research activity of 'case studies' to these hands-on lessons. You get to take your new 'guts' with you!  
*Starla Ewan, Byron Martin Advanced Technology Center*

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**A-04**      **Saturday**    **9:30 A.M.-10:30 A.M.**      **Conv Ctn**      Lecture/Demo

**Using Self-Made Videos as a Teaching Tool**  
 All levels Gr. 9 - 12 Teachers      Professional Development Intermediate Level  
 CTLE Approved: In today's technology-driven world, never has it been easier to make quality videos to be used in class. This session will show how self-made videos can enhance instruction and improve the classroom experience for students. Video is a powerful tool when it brings the real world into the classroom. It enables teachers to show close-ups and difficult to perform demonstrations. With time lapse and slow motion, you can show phenomena that are unobservable. Video can also be used to improve the homework experience, help students relearn and review, and aid students who miss class.  
*Tom Gazda, Ichabod Crane Central School District*

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**A-05**      **Saturday**    **9:30 A.M.-10:30 A.M.**      **Conv Ctn**      Lecture/Demo

**Selected Activities and Approaches from the Teacher-Friendly Guide to Climate Change**  
 Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers      Earth Science Intermediate Level  
 CTLE Approved: This Guide, available free, online at [teacherfriendlyguide.org](http://teacherfriendlyguide.org), addresses the science and the psychological and social issues that make it challenging to teach and learn. In this session, we'll explore the guide and engage some of the activities and strategies from the guide.  
*Don Duggan-Haas, The Paleontological Research Institution; Robert M. Ross, The Paleontological Research Institution*

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**A-06**      **Saturday**    **9:30 A.M.-10:30 A.M.**      **Conv Ctn**      lecture

**Transitioning to Three Dimensional Teaching**  
 All      All  
 CTLE Approved: The Framework for K-12 Science Education advocates for a three dimensional approach to teaching science. This session will begin with an introduction of a phenomena and then explore the philosophical, pedagogical, Professional Development shifts required to work within the 3-D construct.  
*David Crowther, President, NSTA*

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**A-07**      **Saturday**    **9:30 A.M.-10:30 A.M.**      **Conv Ctn**      Hands On

**Using Glencoe's Earth Science Text to Develop and Teach 3-D Lessons**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers      Earth Science Professional Development  
 CTLE Approved: Review of the NGSS 3-D instructional format and forum to discuss how the textbook and its resources can assist teachers design lessons and show evidence of meeting the NYS SLS. Door Prize.  
*Fran Hess, Glencoe / McGraw-Hill*

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**A-08**      **Saturday**    **9:30 A.M.-10:30 A.M.**      **Conv Ctn**      Hands On

**Kids Creating Guiding Questions**  
 Gr. K - 5 Teachers Gr. 6 - 8 Teachers      Elementary Level Intermediate Level  
 CTLE Approved: Learn how to have students develop the guiding questions for your next unit! Learn a strategy to focus the questions students develop so they will align to your objectives and NYS SLS. And, the best thing is, students will be engaged and eager to answer their own questions throughout the unit.  
*Cheryl Aldrich, Sweet Home School District; Beth Swierski, Sweet Home School District*

<b>A-09 &amp; B-09</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Straw Rockets are Out of This World</b>				
Gr. K - 5 Teachers		Gr. 6 - 8 Teachers		Elementary Level Intermediate Level
CTLE Approved: Expand your knowledge of astronomy and rockets to engineer and test your own straw rockets. This is an active workshop where you will be increasing your knowledge of rocketry and using the information to develop a STEM- based unit with your elementary and middle school students. The materials are easily adaptable for a diverse population and ELL learners. Participants will have an opportunity to share their ideas and strategies, discuss the results of their rocket launches, and converse about ways of incorporating this unit into their school science programs.				
<i>Joan Gillman, The Calhoun School</i>				
<b>A-10</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Talking shop! Productive Student Dialogue about Controlled Experiments and Science Phenomena</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Biology Special Ed./ELL
CTLE Approved: In my urban Living Environment classroom, students with disabilities, English Language Learners, and general education students engage in peer interviews in order to plan and carry out investigations. I use tasks involving an information gap and role reversal as well as an interview guide with sentence stems to facilitate discussion about each group's procedure design. Students then work together to make revisions. Session participants will experience the dialogue prompts firsthand as they collaborate to modify their own labs to help students become more adept at this important practice.				
<i>Andrea Polanski, Rochester City School District (East EPO)</i>				
<b>A-11 &amp; B-11</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Exploring Climate Change: A History of Earth's Atmosphere</b>				
Gr. 6 - 8 Teachers		Gr. 9 - 12 Teachers		Earth Science Intermediate Level
CTLE Approved: 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.				
<i>Stephanie Brunnett, Lab-Aids; Stephanie Finn, Buffalo Public Schools; Kathaleen Burke, SEPUP</i>				
<b>A-12</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Who Will Speak for the Trees?</b>				
All levels		Gr. 9 - 12 Teachers		Applied Sciences
Environmental Science requires application of all science areas and concepts. For the good of our students future, we need to effectively develop environmental awareness, concern and commitment in our students. Come share your favorite activities to make this happen. Bring 20 copies and stuff you need to use.				
<i>Ted Anderson, retired</i>				
<b>A-14</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Argument-Driven Inquiry in the Elementary Classroom</b>				
Gr. K - 5 Teachers				Elementary Level
CTLE Approved: Learn about Argument-Driven Inquiry and how it can help students learn how to use core ideas, crosscutting concepts, and scientific practice to explain natural phenomena.				
<i>Victor Sampson, University of Texas at Austin</i>				
<b>A-15</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Tic Tac Toe Assessment</b>				
All levels				Applied Sciences
CTLE Approved: Create a Tic Tac Toe Board with a variety of intercurricular activities that can be used as an assessment tool. Align the activities to create an assessment tool that is inclusive to all students of varying levels of development.				
<i>Melissa Cummings, SUNY Potsdam</i>				
<b>A-16 &amp; B-16</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Using Mitotic Division to Introduce Statistics in AP and IB Biology</b>				
Gr. 9 - 12 Teachers		College		Biology Professional Development
Turn the root tip mitosis lab into an opportunity to teach the test of correlation and chi-squared so students are prepared to analyze more complex data.				
<i>Kristen Dotti, Catalyst Learning Curricula</i>				

<b>A-19</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>A Stellar Evolving Story</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Earth Science Intermediate Level
CTLE Approved: Dudley Observatory astronomer, Dr. Valerie Rapson will present an overview of stellar evolution. Teachers will then carry out a number of activities designed to help their students understand the process of stellar evolution. Participants will receive a sunspotter activity they can try on their own with a solar telescope set up at the conference. All handouts will be available electronically.				
<i>Joan Wagner, Dudley Observatory; Valerie Rapson, Dudley Observatory at miSci</i>				
<b>A-24</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>NYSED: NYS Science Education - Moving Forward</b>				
All levels College				Professional Development
CTLE Approved: This session will provide a general overview of NYS Science Education. It will focus on the initiatives to support and assist raising awareness and building capacity in the State, Regional and Local levels towards transitioning to the new NYS P-12 Science Learning Standards. An emphasis on the proposed "actions" as included in the NYS Comprehensive Science Standards Systems Implementation Plan aligned to the six key components areas of the Strategic Plan for Science, will be addressed.				
<i>Ann Crotty, New York State Dept of Education; Amanda Zullo NYSMT, New York State Dept of Education</i>				
<b>A-28</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Radisson Riverside</b>	<b>Lecture/Demo</b>
<b>Science Teaching from 1892-Present: Horse and Buggy to Hyperloops, a Discussion of NGSS in New York.</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Professional Development
CTLE Approved: We will present a brief history of science teaching in New York State from 1892 through the present. We want to lay a framework that brings us to present day NGSS tenets to help STEM teachers acquire knowledge and collaborate on ideas to improve instruction. From The Committee of Ten, through the Sputnik years and the alphabet soup science curricula, the 1980's need for reform that led to the 1996 NRC Science Education Standards, the high stakes testing movement and into the NGSS and the spirit of change that they promote. The majority of the workshop will promote and highlight NGSS tenets.				
<i>Peter Veronesi, The College at Brockport; Edel Maeder, Greece Central School District</i>				
<b>A-29</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Spawning Student Success Through Trout In The Classroom</b>				
All levels Gr. 9 - 12 Teachers				Biology Elementary Level
What better way to teach your students about ecology, water quality, chemistry, embryology, conservation and environmental stewardship than raising trout from eggs to stocking fish? Come and learn how easy this program is and what successes and pitfalls await your adventure.				
<i>Micael Comet, South Lewis High School</i>				
<b>A-30</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Scientific Sketching: a 3D Skill for All Learners</b>				
Gr. K - 5 Teachers		Informal Educators		Elementary Level
CTLE Approved: Scientific sketching aligns with the 3D skills of Developing and Using Models (SEP) and Systems and Systems Models (CCC). It is a form of differentiated response that is accessible to all learners. Learn how sketching can be used to show understanding across multiple topic areas and develop topic-specific vocabulary. Be ready to do some sketching of your own!				
<i>Jennifer Baxter, Knowing Science</i>				
<b>AA Session#</b>	<b>Saturday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Building</b>	<b>Hands On</b>
<b>Workshop Title</b>				
Primary Audience		Secondary Audience		Primary Subject
Secondary Audience				Secondary Subject
Workshop Description				

<b>B-01</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>HandsOn</b>
<b>The Edible Classroom</b>				
Gr. K - 5 Teachers Informal Educators		Elementary Level		
CTLE Approved: Preparing students for the challenges of tomorrow is a goal of primary teachers. These challenges are best conquered by students who have been taught how to live healthy and productive lives. As poverty and poor nutrition in families across America rises, many students have limited access to nutritious food at home. I will share an effective way for teachers and students to grow food in the classroom using a vertical aeroponic system. Samples of plant snacks will be presented and participants will receive lesson plans aligned with NYS Common Core and that integrate agriculture, nutrition, science, math, and literacy education for Pre-K through sixth grade.				
<i>Brianna Inman, SUNY Potsdam</i>				
<b>B-02 &amp; A-02</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>HHMI Presents: Digging Deep with Data</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Biology Intermediate Level		
CTLE Approved: This session will introduce participants to several recent activities from HHMI Biointeractive that focus on the use of real-world data to help students answer questions in the fields of evolution and conservation biology. To participate, you will need to bring your laptop for Internet access.				
<i>David Knuffke, Deer Park UFSD</i>				
<b>B-03 &amp; A-03</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Starla's Hands-On Body Systems: How the Digestive System Feeds the Body</b>				
All levels Gr. 9 - 12 Teachers		Biology Applied Sciences		
Hear about successful and affordable hands-on methods that help students learn complicated material faster. We'll explore teaching techniques for guiding students through the building of the hepatic and gastrointestinal system. You'll also receive activities that apply pathology and a student research activity of 'case studies' to these hands-on lessons. You get to take your new 'guts' with you!				
<i>Starla Ewan, Byron Martin Advanced Technology Center</i>				
<b>B-04</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Make Homework a Better Learning Experience with HW Videos</b>				
All levels Gr. 9 - 12 Teachers		Professional Development Intermediate Level		
CTLE Approved: This session will show how to create videos of your homework assignments for students to watch. Homework videos enable students to get immediate feedback on their work, help them when they get "stuck," and give them access to detailed explanations of homework questions that they can watch wherever, whenever, and as many times as they wish. The homework quizzes given in class keep students focused on the goal of homework; to learn and understand the material.				
<i>Tom Gazda, Ichabod Crane Central School District</i>				
<b>B-05</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Virtual &amp; Actual Fieldwork in the Critical Zone</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Earth Science Biology		
CTLE Approved: The Critical Zone (CZ), where rock meets life, is the zone from the bottom of the water table to the tops of the vegetation. There are 9 NSF-funded Critical Zone Observatories (CZOs) around the US with interdisciplinary teams of scientists studying the interplay of Earth systems, but the CZ is everywhere on land. This workshop will include virtual explorations of CZOs and resources and approaches for exploring the CZ outside your classroom door. An overview of the catalog of CZO curriculum resources will also be included, and participants will receive access to related free online resources.				
<i>Don Duggan-Haas, The Paleontological Research Institution; Robert M. Ross, The Paleontological Research Institution</i>				
<b>B-06</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>PD Opportunities from the American Meteorological Society and Earth2Class</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers		Earth Science Intermediate Level		
CTLE Approved: After an overview of the resources available on the Earth2Class and American Meteorological Society Education Program websites, participants will have opportunities to sample classroom-tested activities and slideshow, and other online materials available to support and enrich Earth Science learning. They can also find out how to register for the free AMS DataStreme courses.				
<i>Michael J Passow, Lamont-Doherty Earth Obs. of Columbia University</i>				

<b>B-07</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Using AMS' Project Atmosphere Resources to Teach 3-Dimensional Weather-Related Lessons</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Earth Science Professional Development
CTLE Approved: An overview and sharing of AMS' Project Atmosphere program and resources. These will assist teachers to cover the NYSSLS topics and use NGSS 3-Dimensional instructional strategies. Applicable for grades 4-10.				
<i>Fran Hess, Catskill Regional Teacher Center</i>				
<b>B-08</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Instructional Strategies to Enhance 3-D Teaching</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Biology Intermediate Level
CTLE Approved: Practice using instructional strategies that include reading, writing, listening and speaking skills to enhance teaching and engage your students. These skills will be illustrated using biology subject matter, but are applicable to all areas of science. The use of these strategies can also help you gauge the formative assessment of your students. Take home these strategies to assist you in developing lessons for meeting the NYSSLS.				
<i>Alan Ascher, Retired, Port Richmond HS; Jessica Poseluzny, H.S. for Law and Public Service@ GW Campus</i>				
<b>B-09 &amp; A-09</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Straw Rockets are Out of This World</b>				
Gr. K - 5 Teachers		Gr. 6 - 8 Teachers		Elementary Level Intermediate Level
CTLE Approved: Expand your knowledge of astronomy and rockets to engineer and test your own straw rockets. This is an active workshop where you will be increasing your knowledge of rocketry and using the information to develop a STEM- based unit with your elementary and middle school students. The materials are easily adaptable for a diverse population and ELL learners. Participants will have an opportunity to share their ideas and strategies, discuss the results of their rocket launches, and converse about ways of incorporating this unit into their school science programs.				
<i>Joan Gillman, The Calhoun School</i>				
<b>B-10</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>NGSS in a Blended Learning Environment</b>				
Gr. K - 5 Teachers		Elementary Level		
CTLE Approved: Oneida-Herkimer-Madison BOCES has released a comprehensive K-5 science program to support the release of NYSSL Standards. Transition your classroom from a traditional textbook science experience into a 21st century digitally interactive experience.				
<i>Matthew Bashant, Oneida-Herkimer-Madison BOCES</i>				
<b>B-11 &amp; A-11</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Exploring Climate Change: A History of Earth's Atmosphere</b>				
Gr. 6 - 8 Teachers		Gr. 9 - 12 Teachers		Earth Science Intermediate Level
CTLE Approved: 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.				
<i>Stephanie Brunnett, Lab-Aids; Stephanie Finn, Buffalo Public Schools; Kathaleen Burke, SEPUP</i>				
<b>B-12</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Elementary Engineering in NYSP-12 SLS</b>				
Gr. K - 5 Teachers		Gr. 6 - 8 Teachers		Elementary Level Applied Sciences
CTLE Approved: This workshop will highlight the new engineering portion of the NYS P-12 SLS. Participants will explore and share strategies for introducing vocabulary for regular and ELL students. Resources and model lessons provided.				
<i>Helen Pashley, P/NW BOCES</i>				
<b>B-14</b>	<b>Saturday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Argument-Driven Inquiry in Middle School</b>				
Gr. 6 - 8 Teachers		Gr. 9 - 12 Teachers		Earth Science
CTLE Approved: Learn about Argument-Driven Inquiry and how it can help students learn how to use core ideas, crosscutting concepts, and scientific practice to explain natural phenomena.				
<i>Victor Sampson, University of Texas at Austin</i>				



<b>C-02</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>STEM in the Middle School Classroom? It's Easy!</b>				
Gr. 6 - 8 Teachers		Intermediate Level		
CTLE Approved: Project-Based Inquiry Science is a curriculum that seamlessly inserts and uses STEM ideas to teach major science concepts and tenets in your classroom. PBIS strengthens and hones 21st century skills with your students via project-based learning principles while actively engaging every student.				
<i>Gary Curts, It's About Time</i>				
<b>C-03</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Handling the Challenging Student</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Professional Development Intermediate Level		
We all have had students who can interrupt the learning atmosphere. Learn how to disarm and turn it all around, with out yelling and screaming!				
<i>Starla Ewan, Byron Martin Advanced Technology Center</i>				
<b>C-04</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Interactive Science Notebooks for the New Standards</b>				
Gr. K - 5 Teachers Gr. 6 - 8 Teachers		Elementary Level Special Ed./ELL		
CTLE Approved: Our Science Notebooks have been evolving over the past 5 years as we learned about the 3 dimensions in NGSS. Now, as we transition to the NYS SLS we have started to incorporate the 3 Dimensions of NYS SLS into elementary science notebooks. Learn our strategies for note booking at the elementary level. Student samples will be shared.				
<i>Cheryl Aldrich, Sweet Home School District; Beth Swierski, Sweet Home School District</i>				
<b>C-05</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Using Corn Domestication and Growth to Teach Genetics, Evolution, and Careers in Science</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Biology Applied Sciences		
CTLE Approved: Maize (corn) is an ideal subject for evolution education because it's a familiar, ubiquitous, societally significant, and easy to obtain. Important genetic variation can be related to phenotypic variation that's readily observable a classroom setting. We will illustration new classroom activities, free online resources (including a Teacher-Friendly Guide to the Evolution of Maize), and PBS videos that use corn to teach concepts in biology and highlight careers in genetics and its application to agriculture. The project is a collaboration among Cornell University, Museum of the Earth, and WSKG.				
<i>Robert Ross, Paleontological Research Institution; Andrielle Swaby, Paleontological Research Institution; Dhyaneswaran Palanichamy, Cornell University; Nancy Coddington, WSKG; Carlyn Buckler, SUNY Oneonta/Cooperstown Museum Studies</i>				
<b>C-06</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>A Taste of NGSS-Aligned Earth Science Activities for Instruction and Enrichment</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Earth Science Intermediate Level		
CTLE Approved: Try out challenging activities designed to meet NGSS expectations for middle and high school Earth Science classes. Themes include: (1) "Phenology and Climate Patterns"; (2) "Creating Data Sets to Explore Ground-Level Ozone and Temperature Patterns"; and (3) "Using 'Tales of the Resolution' Graphic Novels" (real-life Nature of Science).				
<i>Michael J Passow, Lamont-Doherty Earth Obs. of Columbia University</i>				
<b>C-07</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Chemistry Activities for the Elementary School aligned with NYSSLS</b>				
Gr. K - 5 Teachers		Chemistry		
CTLE Approved: Come and try some hands-on chemistry experiments with a high school chemistry teacher that are aligned with NYSSLS. We'll discuss how these simple experiments can be used in your elementary classroom. Walk away with materials and supplies to try in your classroom.				
<i>William (Bill) Brown, Queensbury High School</i>				
<b>C-08</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Make for More Than the Sake of Make</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers		Applied Sciences Earth Science		
CTLE Approved: The idea of students "creating" and "making" in the science classroom is growing in popularity. There are strategies that allow us to take advantage of the attraction of this student-centered approach in a way that not only allows for student creativity in problem-solving but also serves to meet the needs of their communities. Participants will experiment with some simple technologies that they can easily replicate in their classrooms in helping them meet the NYSSLS.				
<i>Michael Jabot, SUNY FRedonia</i>				

<b>C-09</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Mars Here We Come</b>				
Gr. K - 5 Teachers		Gr. 6 - 8 Teachers		
		Elementary Level Earth Science		
CTLE Approved: Expand your knowledge of Mars and learn about NASA's exciting satellite named MAVEN that is collecting data about Mars' atmosphere. In this workshop, you will be collaborating with your peers to try and match up Earth's surface features with those that are on Mars. We will be using evidence from MAVEN's mission to observe the clues as to what ancient Mars must have been like. The materials in this workshop are easily adaptable for a diverse population and ELL learners in the elementary and middle grades.				
<i>Joan Gillman, The Calhoun School</i>				
<b>C-10</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Implementing NYSSLS into the Elementary Classroom</b>				
Gr. K - 5 Teachers		Elementary Level		
CTLE Approved: Come and discuss implementing the NYSSL Standards into an elementary classroom. Elementary teachers who have been implementing the NYSSL Standards into their classroom for the past two years will discuss their successes and pitfalls.				
<i>Matthew Bashant, Oneida-Herkimer-Madison BOCES</i>				
<b>C-11</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Modeling Gene Expression</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		
		Biology Intermediate Level		
Students often have trouble conceptualizing how selective gene expression works. In this workshop, participants will use manipulatives to teach this concept and explain how it is connected to genetic engineering. Innovative activities are selected from Science and Global Issues: Biology, a new program from SEPUP and LAB-AIDS. Activities focus on ways to integrate selective gene expression as a relevant and engaging sustainability issue.				
<i>Stephanie Brunnett, Lab Aids; Stephanie Finn, Buffalo Public Schools; Kathaleen Burke, STANYS retiree</i>				
<b>C-12</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Restoring Ecological Balance to the Giant Panda Population: One Molecular Test Design at a Time!</b>				
All levels		Gr. 9 - 12 Teachers		
		Biology Professional Development		
Come and put your ecology, immunology & endocrine system and animal behavior knowledge basics to the test. You will model and test a hormone detection system that can be utilized to enhance Giant Panda population conservation and reintroduction efforts.				
<i>Tamica Stubbs, Bio-Rad Laboratories</i>				
<b>C-14</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Engaging Unlikely Learners Through Underwater Robotics</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		
		Applied Sciences Physics		
CTLE Approved: Take the plunge and challenge your students to tackle real-world missions in the underwater environment. You don't have to be an expert in robotics to engage your students in STEM. Come see how HFM PTECH students from a variety of backgrounds found a home on our Underwater Robotics Team. Our underwater robotics experience integrates technical, teamwork, business, electronics, computer programming and critical thinking skills as well as environmental science, physics, oceanography and more.				
<i>Jamie Dickinson, HFM PTECH; Heather Buskirk, HFM PTECH</i>				
<b>C-15</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Applying Good Observational Skills to Forensic Examination.</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		
		Applied Sciences		
CTLE Approved: Examine the factors that affect our ability to perceive our surroundings. Why are eyewitness accounts of crime so inaccurate? Examine strategies to sequence events & detect falsehoods. Using readily available videos, work with your students on improving their observational skills. Examine deceptive behaviors in speech and body language. What questions (and answers) should an examiner focus? What are the basic rules of questioning? How do micro-expressions aid the examiner? Handouts including real life examples and a resource list will be provided.				
<i>Anthony (Bud) Bertino, Canandaigua Academy (retired); Patricia Nolan Bertino, Scotia-Glenville High School</i>				
<b>C-16</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Materials Matter: What is Materials Science?</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		
		Chemistry Applied Sciences		
CTLE Approved: Use solids to make chemistry more relevant for students. Hands-on STEM activities using solid materials (metals/polymers/ceramics) make concepts easier to teach and learn. NGSS correlations. CD of information.				
<i>Sherri Rukes, Libertyville High School</i>				

<b>C-19</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Conv Ctn</b>	
<b>Zika Virus: A First Hand Account from Inside a Public Health Lab</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Biology Retirees		
CTLE Approved: Zika virus unexpectedly and suddenly entered the world of New York State public health in 2016. While zika virus was known in other parts of the world, it rapidly arrived and spread like wildfire in South America and elsewhere. Public health laboratories are required to respond to these emerging infectious diseases with testing protocols and expertise in guiding public health actions. Unlike many other emerging infectious diseases, there was very little knowledge about zika. Questions needed answers, and right away. How did a virus located primarily in South America become a threat to the health of New Yorkers, who was at risk, what were the best laboratory tests to use, how long did the virus persist in humans, what mosquitos could transmit the disease, is the virus contagious, could the virus become endemic in the United States, does zika cause microcephaly in newborns, is zika transmitted sexually, and many many more. In addition, how does a public health lab handle testing of specimens that numbered 0 in 2015 and over 10,000 in 2016? This talk will take you through these questions including the initial process of how we addressed the challenge to provide early laboratory testing, the issues we faced on a daily basis, and the many practical changes we instituted along the way to respond to changing knowledge about zika. The most up-to-date knowledge of new tests for zika will be presented in a glimpse of the future.				
<i>Dr. Ronald Limberger, NYS Department of Health</i>				
<b>C-22</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Phenomena Chemistry: Formative Assessments &amp; Through-Course Tasks</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Chemistry		
CTLE Approved: Methods for integrating phenomena into daily formative assessments and through-course tasks (TCTs) will be introduced. Several chemistry topics will be used so that participants can bring multiple methods of assessment back to their classroom that are linked to three-dimensional teaching and learning. TCTs will be unpacked so that participants can build a storyline based on multiple performance expectations and three-dimensional questions. Methods for using and grading these assessments will also be discussed.				
<i>Matt Christiansen, Islip Union Free School District</i>				
<b>C-23</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	<b>Lecture/Demo</b>
<b>How Can We Ensure that the New Science Standards Make a Difference?</b>				
All levels Gr. 9 - 12 Teachers		Professional Development Intermediate Level		
CTLE Approved: This session will identify key impediments to a successful systemic and systematic implementation of the new science learning standards across New York State. Presenters will provide possible solutions to address these impediments and invite participants to offer their own concerns and suggestions.				
<i>Bruce Tulloch, New York State Science Education Consortium; Arnie Serotsky, New York State Science Education Consortium; Joseph Zawicki, Buffalo State College</i>				
<b>C-24</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>NYSED - NYS Science Education - Gaining Momentum</b>				
All levels College		Professional Development		
CTLE Approved: This session will provide an opportunity for participants to interact with specific "actions" included in the NYS Comprehensive Science Standards Systems Implementation Plan. Participants will discuss strategies to approach "actions" in one of six key component areas (Standards, Curriculum, Professional Development to Enhance Instruction, Assessment, Materials and Resources Support, Administrative and Community Support) and confer ways to raise awareness and build capacity at the State, Regional and Local level based on their expertise and leadership perspectives.				
<i>Ann Crotty, NYS Dept of Education; Amanda Zullo NYSMT, NYS Dept of Education</i>				
<b>C-26</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Physics Breakout Boxes</b>				
Gr. 9 - 12 Teachers		Physics		
CTLE Approved: Join 5 New York Master Teachers who have researched, prepared, and tested physics breakout boxes in Mechanics, Electricity, Waves, and Modern Physics. Participants will experience physics breakout boxes, learn how to create them, and a lucky few will walk away with breakout boxes from the door prize giveaway!				
<i>Charlie Wilson NYSMT, New York State Southern Tier Master Teachers; Richard Townsend NYSMT, New York State Southern Tier Master Teachers; Chris Ruston, New York State Southern Tier Master Teachers; Ray Kaschalk, New York State Southern Tier Master Teachers; Alison Locke, New York State Southern Tier Master Teachers</i>				

<b>C-27</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	Lecture
<b>Inspiring Interest in Science Phenomena Using Guided Instruction</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Earth Science Biology
CTLE Approved: Participants will gain knowledge to improve instruction as well as increase student achievement by providing rigorous, developmentally appropriate instructional strategies to use to assess student progress in a safe, secure, supportive and equitable learning environment.				
<i>Rosemarie Sanders, DAL Earth Science</i>				
<b>C-28</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	Lecture/Demo
<b>How to Increase Motivation in Your Classroom</b>				
Gr. 6 - 8 Teachers		Gr. 9 - 12 Teachers		Intermediate Level Elementary Level
CTLE Approved: Participants will be exposed to the work of Deci & Ryan's Self Determination Theory (SDT) with respect to student motivation in the classroom. The Self Determination Theory states that when a student's need for autonomy, competence and relatedness are met, motivation will increase. Participants will learn how to administer and score a vetted survey based on Deci & Ryan's research. Participants will be given some new and unconventional research based strategies to support the needs of students.				
<i>Kim Saccardi, University of Rochester &amp; Newark Middle School</i>				
<b>C-29</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	Hands On
<b>Earthquakes, Volcanoes, and Mountains!</b>				
Gr. 6 - 8 Teachers		Gr. 9 - 12 Teachers		Earth Science
We'll do several hands-on activities for middle and high school that show the interaction of forces within the earth that produce earthquakes, tsunamis, volcanic eruptions, and mountain building.				
<i>Jean Pounder, Westhill</i>				
<b>C-30</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Radisson Riverside</b>	Hands On
<b>Taking GENI-ACT Out of the Bottle: A Hands-On Activity for Students</b>				
Gr. 9 - 12 Teachers		College		Biology Professional Development
This presentation will inform teachers of the hands-on genomic annotation experience offered through GENI-ACT. Teachers will have the opportunity to follow along and discover the activities and content available to their students.				
<i>Stephen Koury, University at Buffalo; Rama Dey-Rao, University at Buffalo</i>				
<b>C-40</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Hyatt Regency</b>	Lecture/Demo
<b>Developing Student Questioning Skills</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Earth Science Biology
CTLE Approved: Students ask a lot of questions. Learn how to teach the skill of question formulation while improving their literacy skills. Learning how to ask questions leads to improved learning. Methods to differentiate will be discussed.				
<i>Michelle Ebert, Greece Central School District; Sean O'Donnell, Greece Central School</i>				
<b>C-41</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Hyatt Regency</b>	Lecture/Demo
<b>Emergency Services in the Classroom</b>				
Gr. 9 - 12 Teachers		College		Biology Applied Sciences
A Presentation of my struggles and successes teaching NYS Certified First Responder to Junior and Seniors in the classroom. It is the first time in the Cayuga County BOCES district that this course has been offered at the high school level and possibly in the state. Students are leaving this course with lifesaving skills and exposure to their local emergency services operations. Local ambulance and fire departments came into the classroom to assist with this endeavor.				
<i>Michele Shaw, Southern Cayuga Central School</i>				
<b>C-42</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Hyatt Regency</b>	Lecture/Demo
<b>NASA SOFIA - Infrared Astronomy and the Electromagnetic Spectrum in the Classroom</b>				
All levels		Gr. 9 - 12 Teachers		Earth Science Physics
CTLE Approved: NASA SOFIA is largest airborne observatory in the world. Flying at 43,000+ SOFIA uses an infrared telescope and various instruments to explore the solar system, galaxy and universe. As an Airborne Astronomy Ambassador I had the opportunity to fly 2 missions with SOFIA and do observations along side the crew, pilots and scientist. Learn how you can use the same technology as SOFIA in your classroom curriculum. There are connections to real work applications for K-12 Science.				
<i>Paul Levin NYSMT, Galway High School</i>				

<b>C-43</b>	<b>Saturday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Hyatt Regency</b>	<b>Hands On</b>
<b>STEM &amp; PBS KIDS</b>				
Gr. K - 5 Teachers Informal Educators		Elementary Level Earth Science		
This session will give an overview of STEM tools, content, and resources available from PBS KIDS. The session will offer resources appropriate for PreK-Elementary students, such as those from the Splash & Bubbles series that underscore our fundamental interconnection with the ocean and promote our role as stewards of water resources. The main goal is to make the ocean relevant to all participants by creating opportunities to learn about the ocean's importance, how it connects to other bodies of water, including landlocked areas, and how the Earth's marine environments impact their community.				
<i>Cara Rager, WXXI Public Broadcasting</i>				
<b>D-01</b>	<b>Sunday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands-on</b>
<b>Zombies, Maggots and Ghosts, Oh My!</b>				
Grades 7-12 Grades 7-12		STEM Math and Science		
Join us and connect the Science and Math behind Zombies. Use maggots, flies, and flesh to solve a mystery. Are ghosts real and is there really math and science involved? Come join us to find out!				
<i>Wendy Peel, Texas Instruments, Inc.</i>				
<b>D-04</b>	<b>Sunday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Project-Based Learning + NGSS = Active Physics</b>				
Gr. 9 - 12 Teachers College		Physics		
CTLE Approved: Develop a sport for the moon, create a light and sound show to entertain your friends or design and build an improved safety device for a car. Project-Based Learning motivates students and challenges them to apply their physics knowledge. The PBL lessons can simultaneously reflect the three dimensions of NGSS. Our AP has been incredibly successful in schools across the county and is now being adapted overseas. Come join in the amazing experience of Active Physics!				
<i>Gary Curts, It's About Time</i>				
<b>D-05</b>	<b>Sunday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Phenomena Chemistry: Solutions</b>				
Gr. 9 - 12 Teachers		Chemistry		
CTLE Approved: In this first presentation of the Phenomena Chemistry strand, participants will gain and expand content knowledge and skills, as well as have the opportunity to collaborate to improve instruction and student achievement on two topics: precipitation reactions and colligative properties. We will present two NGSS-style lessons that are developmentally appropriate instructional strategies for students in Regents Chemistry to meet the diverse needs of all students in your class.				
<i>Sonal Patel-Dame NYSMT, Plattsburgh City School District; Toni LaPoint NYSMT, Carthage Central School District</i>				
<b>D-06</b>	<b>Sunday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Making Chemistry More Fun</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Chemistry Professional Development		
This is a SAR workshop. Presenting a series of demonstrations that include flames and explosions. We'll add original songs, an old fashioned sense of humor, sage advice and ideas, a few laughs and plenty of enthusiasm. See techniques that make the Magic of Chemistry more enjoyable for you and your students.				
<i>Paul Monaco, Retired</i>				
<b>D-07</b>	<b>Sunday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>It's Not What's Supposed to Happen, It's What Is</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Chemistry Biology		
CTLE Approved: "Was that supposed to happen?" "My results are bad. I really messed up the data." What do you do when the lab doesn't "work"? You use it to teach, of course! With new science standards to guide our work, lab time with students doesn't (shouldn't!) look the same as it used to. Let's collaborate on how to change our collective outlook on using phenomena and inquiry-based instruction to engage students and allow for deeper understanding. The Claim-Evidence-Reasoning (CER) technique will be modeled.				
<i>Donna Himmelberg NYSMT, Fairport Central School District</i>				

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**D-09**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Conv Ctn**    **Hands On**

**Organs, Genetics, Diseases, Oh My! Science and Health Resources for Middle/High School**

Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers

Intermediate Level Professional Development

This workshop will focus on providing an overview of freely available, interdisciplinary and reliable resources from the National Library of Medicine (NLM) and other reputable agencies for use with middle and high schoolers. If you are interested in locating quality materials that you can integrate into existing curriculum on Biology, Careers, Disaster, Environmental Health/Chemistry, Forensics and Medical Technology, General Health, Genetics, HIV/AIDs and organ donation, then this workshop is for you!

*Lydia Collins, National Network of Libraries of Medicine, Middle Atlantic Region*

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**D-10**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Conv Ctn**    **Hands On**

**Claim-Evidence-Reasoning: Scientific Explanations about Phenomena**

Gr. 6 - 8 Teachers Gr. K - 5 Teachers

Intermediate Level Professional Development

CTLE Approved: CER is a way for students to explain observed phenomenon in a scientific way and how observations and data from an investigation are connected to science knowledge. This acclaimed and highly successful instructional strategy is changing how lab instructions are conducted and making science investigations meaningful for students. ELD strategies will be shared and modeled.

*Terry Talley, STEMscopes; Sharry Whitney NYSMT, STEMscopes*

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**D-12**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Conv Ctn**    **Hands On**

**Online quizzing with video feedback using Google Classroom**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Professional Development Chemistry

CTLE Approved: Using simple online tools teachers can create online quizzes using Google apps. Questions in the quiz can be supported by a brief "screen shot" video explaining each question. After completing the quiz, students watch video explanation for questions. This tool provides students with additional at home support and provides data to inform teacher instruction. The workshop will detail the process of creating the quizzes, collecting & interpreting data from the quizzes, and making video feedback to link to Google. Participants will leave with a hard copy and a video explaining the process.

*Jason Bradley, New Hartford CSD*

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**D-14**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Conv Ctn**    **Lecture**

**Using Phenomena to Initiate Student Science Performances**

All levels

Professional Development

CTLE Approved: Learn how you can engage students in a science performance by modeling instruction consistent with the Framework and NGSS.

*Kenneth Huff, Williamsville Central School District*

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**D-15**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Conv Ctn**    **Lecture**

**Using Scientific Practice to Engage Students: Designing a High School Evolution Curriculum From a Feminist Perspective**

Gr. 9 - 12 Teachers

Applied Sciences Biology

CTLE Approved: Educators will expand content knowledge & instructional strategies skills while exploring an evolution unit designed from a feminist perspective using practice as its pedagogical strategy. This curriculum integrates NGSS' three dimensions, encouraging all students to "do science" & is differentiated to meet their diverse needs. The work of contemporary scientists in the Galapagos Islands is the basis for the curriculum. We will explore one lesson in depth that includes activities developed from the National Center for Case Study Teaching in Science, "The Galapagos" case study. Educators will learn to design NGSS-aligned curriculum elements focused on scientific practice from a feminist perspective & take away lesson plans.

*Heather Page, New York City Department of Education; Patrick Callahan, New York City Department of Education*

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**D-16**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Conv Ctn**    **Hands On**

**Metals to Corrosion: Incorporating Rust into REDOX Chemistry**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Chemistry Applied Sciences

Labs, demonstrations and practical examples which can make reactivity, REDOX and corrosion engineering exciting, practical and easy to teach and learn. STEM connections and CD of information.

*Sherri Rukes, Libertyville High School*

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**D-26**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Radisson Riverside**                      Hands On

**Game Based Learning with Legends of Learning: Get Your Cape On!**  
 Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers                      Intermediate Level Special Ed./ELL  
 Legends of Learning is an online gaming platform for middle school science that allows teachers to make playlists of games for students.  
*Scott Beiter, Rensselaer City School District; Rebecca Beiter, Bethlehem Central School District; Aryah Fradkin, Legends of Learning*

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**D-27**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Radisson Riverside**                      Hands On

**The Physics of Speech and Sound**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Physics Biology  
 CTLE Approved: How are speech sounds formed and what do they look like? How can our students make connections between biology and physics using free software and engaging classroom experimentation? We will delve into the physiology and physics of speech, make connections to how our ears receive and process sound information, and apply wave and energy transformation principles of physics to our own human sounds. Spectrogram analysis (free) and lab materials will add a new dimension to the study of sound.  
*Carol Burch NYSMT, Hannibal High School; Joshua Buchman NYSMT, Fayetteville-Manlius High School*

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**D-28**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Radisson Riverside**                      Lecture/Demo

**3-D Modeling: Some Practical Examples for Intermediate Science Teachers**  
 Gr. 6 - 8 Teachers                      Intermediate Level  
 CTLE Approved: This workshop will provide intermediate teachers with models that will assist them in planning lessons that are NYSSLS aligned. The presenters will share their experiences with 3D instructional modeling and debrief three lessons constructed to encourage the linkage of the STEAM Practices of Gathering, Reasoning, and Communicating to the appropriate Literacy Expectations set forth in the NYSSLS. Participants will be provided with lesson plans, a modeling template, discussion and the opportunity to work in small groups to model their own lessons with supportive feedback and guidance.  
*Tami Cruz, Grand Ave MS/Bellmore Merrick CHSD; Patrick Mannion, Grand Ave. MS/Bellmore-Merrick CHSD*

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**D-29**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Radisson Riverside**                      Lecture/Demo

**Transforming your Class with Schoology**  
 All levels Retirees                      Professional Development Special Ed./ELL  
 We will look at the basics of Schoology and how you can utilize this Learning Management System in your science class to increase student and parent engagement, as well as ease your workload. We will show how to create your account and classes, how students join the class, and show the great features available (digital assignments, class discussions, embedding videos etc.). All of these are a perfect fit to a science class and we will look at specific examples using Schoology.  
*Maureen Smith, Broome Tioga BOCES*

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**D-30**                      **Sunday**                      **8:00 A.M.-9:00 A.M.**                      **Radisson Riverside**                      Hands On

**Exploring Electrical Circuits with a One-of-a-Kind Light Bulb & Switch Board**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Physics  
 CTLE Approved: Teachers explore a unique tool to improve student achievement in the new AP and NGSS standards on electric circuits. This low voltage light-bulb board allows students to investigate series, parallel, and combination circuits by simply opening and closing switches. Appropriate for all levels of physics & physical science, the apparatus fosters student engagement, collaboration and prediction making, both conceptually and mathematically. Content knowledge addressed can be as simple as following schematics, to something as complex as applying Kirchhoff's rules for circuits.  
*Paul Sedita NYSMT, Canandaigua City School District; Mike Madden NYSMT, Canandaigua City Schools*

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**E-01**                      **Sunday**                      **9:30 A.M.-10:30 A.M.**                      **Conv Ctn**                      Hands-on

**Coding is Cool!**  
 Grades 7-12 Grades 7-12                      STEM Math and Science  
 No coding experience needed for this session! Learn how to code with calculators in your Math, Science, or STEM classroom. You will learn how to control input of sensors and output of lights, sounds and motors. This will be hands-on use of the TI-Innovator hub and can spark the imagination of your students and get them excited about coding and engineering. Door prizes will be given!  
*Wendy Peel, Texas Instruments, Inc.*

<b>E-02</b>	<b>Sunday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Integrating iPad with Vernier Technology</b>				
All levels Gr. 9 - 12 Teachers Chemistry Physics				
CTLE Approved: In this hands-on workshop, you will use iPad with various Vernier sensors to investigate biology, chemistry, and physics concepts. See how sensor-based experiments teach students about data collection and analysis; practices that promote science inquiry, improve science literacy, and boost test scores.				
<i>David Carter, Vernier Software &amp; Technology; Verle Walters, Vernier Software &amp; Technology</i>				
<b>E-03</b>	<b>Sunday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Phenomena Chemistry: Kinetics</b>				
Gr. 9 - 12 Teachers Informal Educators Chemistry Special Ed./ELL				
CTLE Approved: Start meeting the NYSSLS and improve your instruction and student achievement while meeting the diverse needs of all students. Students will improve content knowledge using collaborative phenomena based activities that are designed to create an equitable learning environment for all learners as they discover the basics of kinetics.				
<i>Prin Furst, Auburn Enlarged School District; Brian Bealer, Auburn Enlarged School District</i>				
<b>E-04</b>	<b>Sunday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Using YouTube Videos to Bring the Real World into Your Classroom</b>				
All levels Gr. 9 - 12 Teachers Professional Development Intermediate Level				
The world is big, your classroom is small. Let YouTube videos expand the scope of your teaching beyond the four walls of your classroom. They can take you to peaks of the tallest mountains, to the depths of the oceans and everywhere in between. YouTube's staggering collection of science content videos helps bring real world science into your classroom. Use videos of time lapse, slow motion, animations, aerial footage, extreme close ups and archival footage as invaluable teaching tools in the classroom.				
<i>Tom Gazda, Ichabod Crane Central School District</i>				
<b>E-05</b>	<b>Sunday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>What NGSS/NYSSLS Looks Like in the Middle School Classroom</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers Intermediate Level Biology				
CTLE Approved: NGSS is coming. Are you ready? This workshop will go over the new changes coming with the NGSS. The workshop will go over the three dimensions of NGSS. This workshop will explore how the middle school classroom should look when the NGSS is adopted. Various middle school lessons, that are aligned with NGSS, will be introduced and shared with the participants.				
<i>Jon Steigerwald NYSMT, Deer Park School District</i>				
<b>E-15</b>	<b>Sunday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Forensic Science Glass Analysis</b>				
Gr. 9 - 12 Teachers College Physics Biology				
CTLE Approved: Linking a victim or a suspect to a crime scene involves the study of trace evidence. Join us while we examine the physics of glass analysis including refractive index, density and fracture pattern analysis. Handouts provided.				
<i>Anthony (Bud) Bertino, Canandaigua Academy (retired); Patricia Nolan Bertino, Scotia-Glenville High School</i>				
<b>E-16</b>	<b>Sunday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>PolyWhat? How can I put Polymers into the Chemistry Classroom?</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers Chemistry Applied Sciences				
CTLE Approved: Simple demonstrations, labs, and activities bring polymers into your curriculum that are STEM relevant. Concepts include formation, classification, structure and properties. NGSS correlations. CD of activities/information.				
<i>Sherri Rukes, Libertyville High School</i>				
<b>E-26 &amp; F-26</b>	<b>Sunday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Make your own Solenoid-Powered Motor</b>				
Gr. 9 - 12 Teachers College Physics				
CTLE Approved: Brought back from last year, participants will work cooperatively to make their own reciprocating motor out of simple wire and wood that will drive a rotating mass. The motor is an excellent demonstration for energy conversion, harmonic motion to rotational motion, electrical coils and magnetism. During the second part of the workshop, participants will work together to develop lessons, labs and activities that incorporate the motor into their lessons. Participants are encouraged to bring their laptops and install a free oscilloscope to help develop laboratory activities for it.				
<i>William Leacock NYSMT, Nassau STANYS Physics SAR, NYS Master Teacher, Bellmore, Merrick Central High School District</i>				



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**F-04**                      **Sunday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Lecture/Demo**

**Using YouTube's Auto-Translate Feature with Your ELL Students**  
 All levels Gr. 9 - 12 Teachers    Special Ed./ELL Professional Development  
 CTLE Approved: YouTube's built-in Auto-Translate feature can be used to translate English language videos to over 100 different languages. This session will demonstrate how Auto-Translate works and how it can be used by your students. It will show how to find existing YouTube videos to be translated as well as how to make your own videos for your ELL students.  
*Tom Gazda, Ichabod Crane Central School District*

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**F-05**                      **Sunday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Lecture/Demo**

**Promoting Creativity and Critical Thinking Using NLM Online Exhibitions**  
 Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers    Intermediate Level Elementary Level  
 CTLE Approved: The National Library of Medicine (NLM) produces freely available creative and informative online exhibitions for use within K-12 settings. Online Exhibitions allow for engaging students in critical thinking, exploring primary and secondary sources, and extend learning through the use of technology then this workshop is for you. The online exhibitions provide equal access to everyone to creative and educational materials focused on medicine & the arts, science and society, patients and practitioners, and the technology of medicine.  
*Lydia Collins, National Network of Libraries of Medicine, Middle Atlantic Region*

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**F-11**                      **Sunday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**Engineering the Future, a Practical Approach to STEM for High School**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Intermediate Level  
 CTLE Approved: STEM, it's a real need and Engineering the Future is a real answer. Learn how Engineering the Future's four, real-world projects give students an opportunity to see how engineering is part of their everyday world.  
*Gary Curts, It's About Time*

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**F-12**                      **Sunday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**DIVE-in to Engineering with STEMscopes**  
 Gr. 6 - 8 Teachers Gr. K - 5 Teachers    Applied Sciences Intermediate Level  
 CTLE Approved: STEMscopes has done it! We have bridged the gap between the traditional engineering kits of today's classrooms where students are simply told to build a standard product and lead students into a true makerspace where they experience a more flexible degree of freedom through the DIVE method. Deconstruct, Imitate, Vary and Explore: join us and see what is all about!  
*Terry Talley, STEMscopes; Sharry Whitney NYSMT, STEMscopes*

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**F-14**                      **Sunday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Lecture**

**Creating A Maker Culture In The Elementary Classroom**  
 Gr. K - 5 Teachers    Professional Development Applied Sciences  
 CTLE Approved: A makerspace is a safe environment that levels the playing field for all learners. Design thinking as a basis for makerspace work, is a human-centered approach to problem solving that begins with developing empathy for those facing a particular challenge. It is a framework for providing students with meaningful work that allows them to grow in their ability to define problems, empathize with others, create prototypes, and hone those prototypes through multiple iterations until they have generated a viable solution.  
*Caroleann Del Giudice, NYC Department of Education/PS 48 P.O. Michael J. Buczek School; Christine Boyer, Scarsdale Public Schools*

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**F-15**                      **Sunday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**Chicken Decomposition Study: Forensics, Ecology, Evolution and Animal Behavior**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Biology Applied Sciences  
 CTLE Approved: Set up a 'crime scene' where students can examine, collect and measure insect growth and interactions. Fly eggs and larvae become food for other insects who, in turn, compete for living space and food. A step-by-step explanation with videos and hand-outs will be used to examine how inexpensively (and easily) this study can be conducted. Examine chemical/ physical decomposition and insect succession on the ever-changing chicken habitat. Witness and apply ecological and evolutionary concepts while conducting a forensic investigation.  
*Anthony (Bud) Bertino, Canandaigua Academy (retired); Patricia Nolan Bertino, Scotia-Glenville High School*

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**F-16                      Sunday                      11:00 A.M.-12:00 P.M.                      Conv Ctn    Hands On**

**Engineerify the Chemistry Classroom**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Chemistry Applied Sciences  
 CTLE Approved: Teach science and engineering practices using bioplastics and other composite materials. Discover inexpensive STEM projects that engage students in a chemistry or physics classroom with NGSS correlations. CD of labs and information provided.  
*Sherri Rukes, Libertyville High School*

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**F-19                      Sunday                      11:00 A.M.-12:00 P.M.                      Conv Ctn**

**Manipulating Large DNA viruses with Synthetic Genomics Tools: Assembly and Genome-wide Engineering of an Infectious Clone of Herpes Simplex Virus Type 1**

Gr. 9 - 12 Teachers College    Biology Retirees  
 CTLE Approved: Viruses with large DNA genomes, such as herpes simplex virus type 1 (HSV-1), can be difficult to manipulate using existing genetic tools, especially when generating complex, combinatorial mutations. We adapted existing synthetic genomic tools to develop a novel method to make combinatorial mutations more rapidly and efficiently in virus genomes. Yeast transformation-associated recombination (TAR) was used to clone 11 fragments comprising the HSV-1 strain KOS genome. Utilizing overlapping sequences between the adjacent pieces, we assembled the fragments into a complete genome in yeast and reconstituted infectious virus following transfection into mammalian cells. The virus derived from this yeast-assembled genome, designated KOSYA, replicated with kinetics similar to wild-type virus. We demonstrated the utility of this modular assembly technology by making numerous modifications to a single gene, making changes to two genes at the same time and, finally, generating individual and combinatorial deletions to a set of 5 genes that encode virion structural proteins. We developed this assembly technology using HSV-1 as a model system and plan to apply it to other herpesviruses and large DNA viruses that lack effective genetic tools. Large DNA viruses are also being utilized as vectors for therapeutics and vaccines, with an oncolytic herpesvirus approved for the treatment of melanoma. When generating vectors for therapeutic applications, this assembly method provides the capacity to design, generate and test candidates in parallel allowing researchers the ability to test more iterations, which can lead to more successful or personalized treatments.  
*Dr. Lauren Oldfield, J. Craig Venter Institute*

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**F-26 & E-26                      Sunday                      11:00 A.M.-12:00 P.M.                      Radisson Riverside    Hands On**

**Make your own Solenoid-Powered Motor**

Gr. 9 - 12 Teachers College    Physics  
 CTLE Approved: Brought back from last year, participants will work cooperatively to make their own reciprocating motor out of simple wire and wood that will drive a rotating mass. The motor is an excellent demonstration for energy conversion, harmonic motion to rotational motion, electrical coils and magnetism. During the second part of the workshop, participants will work together to develop lessons, labs and activities that incorporate the motor into their lessons. Participants are encouraged to bring their laptops and install a free oscilloscope to help develop laboratory activities for it.  
*William Leacock NYSMT, Nassau STANYS Physics SAR, NYS Master Teacher, Bellmore, Merrick Central High School District*

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**F-27                      Sunday                      11:00 A.M.-12:00 P.M.                      Radisson Riverside    Hands On**

**A New Lens on Teaching/Learning**

College    Colleges  
 CTLE Approved: In our work with our "next generation" of science teachers, we are faced by some considerable obstacles. Not the least of these is overcoming the preservice teachers own learning experiences. This session will share research-based approaches that are being used as a way to increase the academic achievement of the students in preservice teachers' classrooms, while at the same time allowing the candidate to develop the developmentally appropriate instructional practices that better meet the needs of the diversity of students in their classrooms as they move forward.  
*Michael Jabot, SUNY Fredonia*

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**F-28                      Sunday                      11:00 A.M.-12:00 P.M.                      Radisson Riverside    Hands On**

**Electric Circuits in Regents Physics**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Physics Intermediate Level  
 CTLE Approved: A three dimensional approach to teaching electric circuits in Regents Physics. Participants will explore a unit plan integrating the scientific and engineering practices and cross-cutting concepts from the NYSSLS. This unit is a sequence of activities in which students build their understanding of electrical concepts. These activities can be modified for a variety of levels of technology, from batteries and analog meters to probe ware. This is a hands-on workshop. Bring your ideas and questions.  
*Charlene Rydgren NYSMT, Frnaklin Academy High School*



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**G-05**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**STEAMSHIP Earth**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Earth Science Intermediate Level  
 CTLE Approved: Increase student buy-in in Earth science by incorporating Arts and Humanities. This presentation includes how to utilize video production as a mode of presentation for everything from student-made instructional videos, to Chroma-key weather forecasts, to having students create a full-length science documentary series. The main focus is to provide the critical emphasis on the student as the purveyor of content. The components of three dimensional (3D) learning serve as underpinning elements for all STEAMSHIP Earth activities.  
*Scott Danville NYSMT, Beekmantown Central School*

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**G-06**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Lecture/Demo**

**Argument-Driven Inquiry in the High School Classroom**  
 Gr. 9 - 12 Teachers    Physics  
 CTLE Approved: Learn about Argument-Driven Inquiry and how it can help students learn how to use core ideas, crosscutting concepts, and scientific practice to explain natural phenomena.  
*Victor Sampson, University of Texas at Austin*

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**G-07**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Using Effective Regents Chemistry Review Strategies: Make the End of the Year More Meaningful!**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Chemistry  
 CTLE Approved: Improve all students' achievements on the Regents Chemistry Exam by incorporating these Review Strategies! Participants will learn engaging and constructive chemistry content review strategies that meet the needs of all Regents chemistry learners. The Reference Table Brain Dump and a multi-station Review Lab will be highlighted. Participants will brainstorm and share their ideas of implementation of these Review Strategies as well as their own. Resources for all activities will be provided.  
*Siobhan Julian NYSMT, Webster Central School District; Prin Furst, Auburn High School*

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**G-08**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Just Change One Thing**  
 All levels    Physics Professional Development  
 CTLE Approved: Asking questions for science is one of the main practices of NYSSLS. Are you tired of being the only one asking questions in your classroom? If so, this session is for you. We will go over a research based technique that has students generating, prioritizing and sharing out questions that can drive instruction or be used in labs. It doesn't matter what grade you teach, this strategy works across the board with all learners & abilities! Examples from different grades and disciplines will be shared. You will have time to collaborate to improve your instruction and student achievement.  
*Karin Cyganovich, Cheektowaga Central Schools; Michael Jabot, SUNY at Fredonia*

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**G-09**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Chemi-paloosa: Demonstrations and Hands-On Activities That Really Get a Reaction!**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Chemistry Intermediate Level  
 CTLE Approved: Learn how to incorporate exciting and engaging chemical demonstrations and hands-on activities into your chemistry curriculum. Join us for an overview of Innovating Science Chemistry Kits, including sample activities highlighting topics like hydrogen fuel cell technology, electrochemical remediation of wastewater, and several other topics. Door prizes will be awarded.  
*Alex Molinich, Aldon Corporation ; Jonathan Laforce, Aldon Corporation*

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**G-10**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Celebrating Urban Birds and Gardens**  
 All levels Retirees    Biology Intermediate Level  
 CTLE Approved: Cornell Lab of Ornithology's K-12 BirdSleuth programs inspire youngsters to connect to their local environments and participate in citizen science projects. At an inner city school in Syracuse, students are involved in some of these activities and the presenter will share their experiences with you. The students created a community garden to encourage a habitat for birds, bees, and butterflies and they learned to identify, observe and record birds in their neighborhood. These observations are shared with Cornell ornithologists. The community is also drawn into the learning experience with festivals in partnership with various nature organizations. Come and find out how you too can engage your students in project-based learning with BirdSleuth activities and how to apply for a garden grant to help accomplish this.  
*Anton Ninno, Syracuse Chess & Southside Academy*

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**G-11**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Humans Really do Cause Earthquakes**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Earth Science Applied Sciences

CTLE Approved: Removing hydrocarbons has become an essential activity for humankind. However, this does not come without the potential to affect the natural and built-up environments. Activities such as hydraulic fracturing and wastewater injection can increase seismic hazards. Participants will explore the science behind this "hot topic" through a classroom-ready, data-rich module that blends crosscutting concepts, disciplinary core ideas, and practices of science and engineering through the eight steps of the Argument Driven Inquiry (ADI) process. Join us to learn a new activity, new content, and a pedagogical tool to foster three-dimensional learning.

*Michael Hubenthal, IRIS Consortium*

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**G-12**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Outside Your Comfort Zone**

Gr. 9 - 12 Teachers

Physics

CTLE Approved: Effective teachers are excited about what they teach and this is hard to do when you're teaching outside of your content area. This workshop will provide non-physics teachers with sample notes, assessments, hands on lab experience and ideas for differentiation for both Regents and General Physics classes.

*Elise Jutzeler, Jamesville-Dewitt High School*

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**G-14**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Discover How Magic Can Demonstrate the Wonders of Science**

Gr. 6 - 8 Teachers Gr. K - 5 Teachers

Intermediate Level Elementary Level

CTLE Approved: 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 you can immediately implement into your curriculum to illustrate specific science content. No experience necessary. Each trick will be presented and explained. All disciplines presented. Bring the wonder of magic to your classroom!

*Dr. Vince Mancuso, Magic for Education*

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**G-16**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Conv Ctn**    **Hands On**

**Phenomenon Based Activity to Enhance the Use of 3-D Instruction**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Biology Intermediate Level

CTLE Approved: Participate in a phenomenon based activity to experience the connections between practice, concepts and cross-cutting concepts.

*Alan Ascher, Retired, Port Richmond HS*

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**G-26**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Radisson Riverside**    **Hands-on**

**New Vision for Teaching Elementary Science**

Gr. K-5 Teachers

Elementary

CTLE Approved: This workshop helps teachers understand how NGSS is different from the way they teach/engage/deliver science from the previous NYSSLS

*Margo Dye, Houghton Mifflin Publishers; Shawyn Jackson, Houghton Mifflin Publishers*

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**G-27**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Radisson Riverside**    **Hands On**

**Learning to Write 3-D Lessons**

All levels Gr. K - 5 Teachers

Elementary Level Intermediate Level

CTLE Approved: Have you tried to make your lessons 3-Dimensional? Facing some challenges? Join the club. This session will describe the journey of 3-D lesson writing by the educators at BOCES 4 Science. A three-year collaboration between teachers and science educators from four different BOCES is producing a set of NYSSLS-based elementary science units. Participants at this session will gain knowledge and skill to create rigorous and developmentally appropriate lessons that meet the diverse needs of all students. An introductory road map for writing lessons & units will be shared. Plan to bring your questions, concerns, and stories!

*Mary Thomas, BOCES 4 Science, Monroe 2; Sharon Bassage, BOCES 4 Science - Wayne Finger Lakes*

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**G-28**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Radisson Riverside**                      Lecture/Demo

**Domesticating and Studying the Microbes Around Us**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Biology Applied Sciences

CTLE Approved: Microbes are the most diverse, widespread, and important organisms on Earth. While they play a significant role in human disease, biogeochemical cycles, and industrial processes, we tend to avoid using them in the classroom out of concern for safety. However, microbes and microbial processes can be observed all around us and harmless organisms can be isolated and studied. This workshop will present lab exercises and other resources that involve microbes and which address a number of the NYS Learning Standards and the relationship of those standards to applied sciences and technology.

*Michael Hanophy, St. Joseph's College, Brooklyn*

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**G-29**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Radisson Riverside**                      Lecture/Demo

**Literacy in the Elementary Science Class**

Gr. K - 5 Teachers

Elementary Level

CTLE Approved: In this workshop, participants will work on connecting literacy and ELA skills with science content. We will discuss strategies for implementing interdisciplinary work and provide samples of lessons that incorporate both disciplines. We will also make available resources for teachers to use for accessing texts that can be utilized within the science disciplines.

*Dominick Fantacone, SUNY Cortland; Maureen Smith, BT BOCES*

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**G-30**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Radisson Riverside**                      Hands On

**Living Environment Best Practices**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Biology Biology

CTLE Approved: Whether you are a teacher with a lot of experience, or a new teacher just starting out, this workshop will help share Best Practices for the Living Environment Classroom. Come expand your content knowledge, collaborate to improve instruction and student achievement, as well as gaining skills to meet the diverse needs of all students. Please bring your favorite labs, activities, or strategies to share or, if you are not comfortable sharing, come share in this collaborative session!

*Heather Randall-Neville NYSMT, Carthage Central School*

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**G-40**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Hyatt Regency**                      Hands On

**Learning Triangle for K-5 Educators, Learners and Learning Partners.**

Gr. K - 5 Teachers Informal Educators

Elementary Level Professional Development

CTLE Approved: The purpose of this workshop is to introduce K-5 grade Educators to a program designed to extend the learning opportunity beyond the classroom into the after-school and home environment. The program integrates Social Studies content with the development of ELA Skills and STEM skills. The teacher and learning partner (mentor or parent) cooperate to consolidate the student mastery of ELA and STEM skills. This workshop introduces the participant to an array of scientific instrumentation, terminology and challenges appropriate to the elementary grade levels.

*Eileen Scannell, Learning Triangle Labs; Ellen Milbrandt, Learning Triangle Labs; Karen Adamski, Learning Triangle Labs*

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**G-41**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Hyatt Regency**                      Lecture/Demo

**Science on the Sandlot: Physics of Baseball**

All levels

Physics Intermediate Level

CTLE Approved: Step out of the dugout and up to the plate as the Baseball Hall of Fame delivers a lively look at the physics of baseball. Collaborate with the museum to examine historical aspects and physical forces involved in playing baseball. Use modern technology to analyze the physical concepts behind hitting, pitching and fielding as they impact the way baseball is played, including tools that are used and how scientific variables affect choices and approaches to the game. Understand the vocabulary and several concepts of physics related to fundamentals of scientific inquiry.

*Stephanie Hazzard, National Baseball Hall of Fame & Museum; Richard Payne, National Baseball Hall of Fame & Museum*

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**G-42**                      **Sunday**                      **1:45 P.M.-2:45 P.M.**                      **Hyatt Regency**                      Lecture/Demo

**Science for ALL Students: How to Modify to Meet the Needs of All Learners**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Special Ed./ELL Elementary Level

CTLE Approved: All students are able to learn and be engaged in enriching science lessons. In this workshop, teachers will learn how to modify their lessons and activities to meet the needs of their struggling learners as well as ELL students. Participants will learn how to implement these strategies into the new NYSSLS.

*Jean Ann Crespo NYSMT, Copiague School District*

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<b>G-43</b>	<b>Sunday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Hyatt Regency</b>	<b>Lecture/Demo</b>
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**Convection, Weather, and the Water Cycle**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Earth Science Intermediate Level

CTLE Approved: Struggling to incorporate NYSSLS into your classroom? Come learn how your students can build their own models and collect real world data to connect recurring themes throughout the year. Collaborate with your peers to develop lessons that really stick with your learners. Join me for hands on ways to get your students 'doing' science!

*Kaitlin Fielder NYSMT, Elizabethtown-Lewis Central School*


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<b>G-46</b>	<b>Sunday</b>	<b>1:45 P.M.-2:45 P.M.</b>	<b>Hyatt Regency</b>	<b>Hands On</b>
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**Engaging Learners in Group Learning Routines for Inquiry-based Earth Science**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Earth Science

CTLE Approved: Often, science teachers have a strong desire to approach instruction in an inquiry-based way, but find it challenging to ensure students learn important content effectively and efficiently. In this immersive workshop, you will experience a chunk of a 5E instructional sequence collaboratively created and field tested by New Visions for Public Schools Earth Science teachers. Group Learning Routines, a structured opportunity for students to collaborate in making sense of observations/data, are utilized to ensure students are able to construct meaning from rich inquiry-based experiences.

*John Salazar, New Visions for Public Schools; Meg Stewart, West Bronx Academy*


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<b>H-01</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
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**STEAM-a-Lama-Ding-Dong**

Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers

Applied Sciences Intermediate Level

CTLE Approved: Music is a great way to get kids excited about STEAM. Learn how to use your calculators, a TI-Innovator hub, and some imagination to get kids excited about coding and the science of sound. This session will help any coding novice become comfortable with the basics by challenging them to create a popular song using a little imagination, cooperation, and coding on a calculator!

*Fred Fotsch, Texas Instruments; Erick Archer, Texas Instruments*


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<b>H-02 &amp; I-02</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
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**Gaming in the Classroom; Take Your Class to the Next Level!**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Biology Intermediate Level

CTLE Approved: Game-based learning is applying principles of (video) game design to instructional scaffolding. Gaming is based on the concepts that learning should be compelling, failure is a valid technique, and progression can be leveled. We will explore different techniques (leveling and badge systems, and Alternative Reality Games) technology tools that can be used to effectively implement gaming features, and evaluating different gaming strategies. Different platforms like DIY Leaderboards, Google Classroom, and Classcraft will also be explored. Please bring a laptop or iPad for optimal participation.

*Julie Tette NYSMT, Lockport City Schools*


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<b>H-03</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
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**Building Student Voice and Equity through Science and Engineering Practices in Chemistry**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Chemistry Professional Development

CTLE Approved: As a result of students getting zeros for not handing in labs, our class transformed how lab work was presented. Students performed the same inquiry labs, but held themselves accountable, collaborated in pairs and shared their findings with other students. By-in was 100%. Learn about tools, such as sentence starters, and discussion prompts that support and reinforce discussion-based learning. These structures allowed students to facilitate their own listening and speaking skills, which then drove the direction of their learning. Grounded in research, models of student work will be shared.

*Kirsten Abbott, Geneva High School*


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<b>H-05</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
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**Maple Sugaring: How Sweet it is!**

Gr. 6 - 8 Teachers Informal Educators

Intermediate Level Elementary Level

CTLE Approved: Maple sugaring has it all: cross-divisional and cross-curricular aspects, connections to community organizations, science, math, English, history, art, and even physical education. Come and explore our K-12 project!

*Beth Guzzetta, Allendale Columbia School*

<b>H-06</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Using Microfluidic Devices in an Experiment for General Chemistry Laboratory</b>				
Gr. 9 - 12 Teachers College		Chemistry Biology		
In this session we will share our lesson learned from implementing the use of microfluidic devices in a general chemistry laboratory. In addition, participants will have the opportunity to experience firsthand the design and test their own microfluidic device.				
<i>Kermin Martinez-Hernandez, St. John Fisher College; Nahyr D. Rovira-Figueroa, St. John Fisher College; Fernando Ontiveros, St. John Fisher College</i>				
<b>H-07</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>SCUBA Diving Applications to Physics and Every Other Science</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Physics Chemistry		
CTLE Approved: We will dive into fluids to show how application based discovery can lead the students to problem solve through tangible activities in and out of the water. We will also look at gas laws, ecology, and history beneath the sea.				
<i>Jaime Rogers NYSMT, South Huntington UFSD</i>				
<b>H-08</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>The 3D of Your Watershed</b>				
Gr. 6 - 8 Teachers		Earth Science Applied Sciences		
CTLE Approved: This session will develop participants' content knowledge around the NYSSLS and the role that the watershed can play in helping classrooms collaborate with their communities. Participants will learn how research-based strategies around the use of GIS technologies can play in developing student understanding of the cross-cutting nature of the watershed as an earth system.				
<i>Michael Jabot, SUNY Fredonia</i>				
<b>H-09 &amp; I-09</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Data-generating Simulations that Add Math and Statistics to your APES/IB ESS or AP/IB Biology Course</b>				
Gr. 9 - 12 Teachers College		Biology Professional Development		
Take home two activities that teach scientific principles through the generation of data, then use the data set to support a hypothesis with evidence.				
<i>Kristen Dotti, Catalyst Learning Curricula</i>				
<b>H-10 &amp; I-10</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Re-align Your Wheels (Don't Reinvent Them)</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers		Professional Development Intermediate Level		
CTLE Approved: Making the leap to the NYSSLS means analyzing, adapting and extending current lessons in a manner consistent with 3-dimensional instruction. Participants will engage in a 3-D lesson showcasing the instructional strategy of gathering, reasoning, and communicating. Graphic organizers will help center the focus on crosscutting concepts, and the workshop will culminate in exploring phenomena by which to develop your own lesson performance expectations. Sounds daunting? Workshop leaders will walk you through a way to organize this shift in instructional practice at any grade level or subject area.				
<i>Cookie Barker NYSMT, Schroon Lake Central School; Sarah Fink NYSMT, Johnsburg Central School</i>				
<b>H-11</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Educational Opportunities from the IODP Outreach Program--Live Your Dream!</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Earth Science Intermediate Level		
CTLE Approved: The IODP (International Ocean Discovery Program) Outreach Program uses the JOIDES Resolution drilling ship as a platform for Science and Education. Explore online resources available through <a href="http://www.joidesresolution.org">www.joidesresolution.org</a> . Learn how to apply and sail as an Onboard Outreach Officer.				
<i>Michael J Passow, Lamont-Doherty Earth Obs. of Columbia University; Nicole Kurtz, Lamont-Doherty Earth Obs. of Columbia University</i>				
<b>H-12 &amp; I-12</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Starla's Hands-On Body Systems: Guts-R-Us</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Biology Applied Sciences		
Participants will build the major organs of the Gastrointestinal Systems out of brightly colored clay. This activity is great in the classroom to guide students to learn the organs, their role in providing nutrition to the body, and their interrelationship with other body system. Participants take their 'guts' home after the workshop!				
<i>Starla Ewan, Byron Martin Advanced Technology Center</i>				

<b>H-14</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Phenomena-Driven Inquiry</b>				
All levels		Intermediate Level Elementary Level		
CTLE Approved: Phenomena-Driven Inquiry is a unique strategy that guides students to make sense of phenomena through an inquiry-based approach. It capitalizes on the unexpected/startling nature of our world, captured through discrepant event demonstrations. Such events embody phenomena and engage by contradicting expectation. Utilizing the POQIE model of instruction, students collaboratively build understanding for science concepts underlying the discrepant event phenomena. Aligns with NGSS.				
<i>Dr. Vince Mancuso, Phenomena-Driven Inquiry.com (Brighton Central School District)</i>				
<b>H-15</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Infusing Reading Strategies in the Science Classroom</b>				
Gr. K - 5 Teachers Informal Educators		Elementary Level Professional Development		
CTLE Approved: As part of an action research project, a team of five teachers, ranging from elementary to high school, examined the effectiveness of infusing the Close reading strategy in to the science classroom. This workshop will primarily focus on the elementary experience.				
<i>Elizabeth Barrett-Zahn, Columbus Elementary School, New Rochelle City School District</i>				
<b>H-16</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Demystify STEM and STEM Teacher Actions</b>				
All levels Informal Educators		Professional Development Intermediate Level		
CTLE Approved: Life-changing STEM outcomes are the result of purposeful instructional planning and delivery that integrates standards-based instruction and high impact STEM strategies. Effective, engaging and evidence-based, these doable strategies will transform your student outcomes. Get your STEM Teacher Certificate through NISE as you refine and demonstrate your understanding of the 15 STEM Teacher Actions. Join us for an engaging, interactive session!				
<i>Terry Talley, STEMscopes</i>				
<b>H-26</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Engaging Students in Paper Prototyping to Learn About the Human Body</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Biology Applied Sciences		
CTLE Approved: Come see how common office supplies can ignite student problem solving, collaboration, and inquiry skills. We will use a paper prototyping activity to design better sporting equipment for disabled athletes who compete in adaptive sports. This workshop will give you a chance test your design thinking skills and sharpen your understanding of articulations in the human body as you participate in a piece of our project based learning unit of Adaptive Sports. Collaborate with colleagues on how can you use paper prototypes in your classroom.				
<i>Heather Buskirk, HFM BOCES; Jamie Dickinson, HFM BOCES</i>				
<b>H-27</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Investigating Solutions to Ocean Acidification through PBL and Engineering Design Challenge</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Biology Chemistry		
CTLE Approved: Participants will learn how to successfully integrate the 3 Dimensions of the NYSSLS in their classroom using an engineering design challenge focused on remediating the impacts of ocean acidification. Participants will learn how to design PBL activities using the Buck Institute's Gold Standard PBL Framework and collaborate to design a solution to ocean acidification. Participants will work together to create a list of scientific phenomena and select one to design an engineering challenge that could be implemented in their classroom, using the ocean acidification design challenge as a model.				
<i>Kimberly Ferguson NYSMT, Iroquois Central School District; Mark Dubel NYSMT, Iroquois Central School District</i>				
<b>H-28</b>	<b>Monday</b>	<b>8:00 A.M.-9:00 A.M.</b>	<b>Radisson Riverside</b>	<b>Lecture/Demo</b>
<b>Flight Plan: Integrating Physical Sciences with Design and Technology</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Physics Intermediate Level		
CTLE Approved: Flight Plan, is an inexpensive, physics/design/technology lesson on transportation in 3-D! The physics of flight is a topic covered poorly in most physics textbooks, if covered at all. Yet no single advancement has changed the course of history and altered the way we live our lives more than the ability to fly. If you are like me, and don't always see the engineering principles that could be taught and used in all your lessons, this unit will help you get started incorporating engineering principles in your classroom.				
<i>Mark Lienau, St. Regis Falls Central School</i>				

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**H-29**                      **Monday**                      **8:00 A.M.-9:00 A.M.**                      **Radisson Riverside**                      Lecture/Demo

**Come Sail Away: Integrating the Curriculum Through Scientific Inquiry and Engineering Design**

Gr. K - 5 Teachers Informal Educators                      Elementary Level Professional Development

CTLE Approved: Set sail for an interactive, hands-on workshop that will have you engaged in an engineering design project that integrates the curriculum. Discover how to use inquiry and design focused instruction to transform your curriculum and lesson plans into integrated, authentic learning experiences that promote critical thinking, communication, collaboration, and creativity.

*Brian Terry, Hewlett Woodmere Public Schools; Jeannine Doxsee, Hewlett Woodmere Public Schools*

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**H-30**                      **Monday**                      **8:00 A.M.-9:00 A.M.**                      **Radisson Riverside**                      Lecture/Demo

**Sunrise, Sunset: Incorporating Student Observations to Understand Seasonality from an Earth Perspective**

Gr. 6 - 8 Teachers Gr. K - 5 Teachers                      Earth Science Physics

CTLE Approved: Middle school students are familiar with models of the solar system and the concept of Earth's revolution around the Sun. However, these models assume a view from space that does little to help students understand natural phenomenon seen from Earth. Student observations provide context for students' learning about the Earth's place in the solar system and foster greater understanding of Earth-Sun relationships. This workshop describes lessons that encourage middle school students to observe the Sun's changing position and length of day, addressing the NYS P-12 Science Learning Standards.

*Todd Ellis, Western Michigan University*

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**H-40**                      **Monday**                      **8:00 A.M.-9:00 A.M.**                      **Hyatt Regency**                      Hands On

**Families Gathering STEAM**

Gr. K - 5 Teachers Gr. 6 - 8 Teachers                      Elementary Level Intermediate Level

CTLE Approved: Family and community engagement within schools is found to lead to many successes in a child's education. Bringing together family engagement practices from Dr. Constantino and STEAM can make it even more successful and fun. During this session, participants will learn how to plan an Elementary STEAM family night from start to finish. Leave with concepts tied to NYSSLS dealing with strategies, inexpensive hands-on ideas and activities, and samples that will get all school stakeholders involved in fun-filled science for the entire family.

*Clay Nolan, CA-BOCES; Karen Insley, 1825 Windfall Road, Olean, NY 14760*

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**H-41**                      **Monday**                      **8:00 A.M.-9:00 A.M.**                      **Hyatt Regency**                      Hands On

**Group Learning Routines to Promote Access in an Inquiry-Based Science Classroom**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Professional Development Biology

CTLE Approved: Group learning routines (GLRs) are designed for classes where there is a great range in student abilities. GLRs create structured opportunities for students to share, summarize, and synthesize ideas with their peers, allowing learners to deepen their understanding in ways that cannot be accomplished alone. This session will model how to use GLRs through a 5E sequence on homeostasis, collaboratively created and field tested by New Visions for Public Schools LE teachers. Participants will experience the activities as a learner, with reflection time on how to adapt and implement the materials.

*John Salazar, New Visions for Public Schools; Elizabeth Chatham, New Visions for Public Schools*

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**H-42**                      **Monday**                      **8:00 A.M.-9:00 A.M.**                      **Hyatt Regency**                      Lecture/Demo

**An NGSS Pre-mortem: What will be Different this Time?**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Professional Development Elementary Level

CTLE Approved: The NGSS envisions sweeping change in how K-12 science is taught but, past educational reform efforts have repeatedly failed to achieve lasting substantial positive change in educational outcomes. We'll complete an exercise that will help us anticipate and avoid implementation problems.

*Don Duggan-Haas, The Paleontological Research Institution; Robert M. Ross, The Paleontological Research Institution*

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**H-43**                      **Monday**                      **8:00 A.M.-9:00 A.M.**                      **Hyatt Regency**                      HandsOn

**Why Can't I Eat That Fish?**

Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers                      Intermediate Level Biology

CTLE Approved: A class activity by participants acting as organisms in a food chain will demonstrate the process of biological magnification. When replicated with your students (including ELL), they will be able to draw a model demonstrating this process.

*Cinnamon Marchione, Adirondack Central*

<b>I-01 &amp; J-01</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Drought in Africa Inspires Students to Invent a Smart Irrigation System</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers Applied Sciences Biology				
CTLE Approved: Come learn how to create a project-based camp or classroom lesson that enables students to apply concepts, such as photosynthesis and the water cycle, to design a smart irrigation system. Inspired by real-world events, students are motivated to apply problem-solving skills and learn some basic programming to come up with innovative solutions to the drought situation in southern Africa.				
<i>Fred Fotsch, Texas Instruments; Erick Archer, Texas Instruments</i>				
<b>I-02 &amp; H-02</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Gaming in the Classroom; Take Your Class to the Next Level!</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers Biology Intermediate Level				
CTLE Approved: Game-based learning is applying principles of (video) game design to instructional scaffolding. Gaming is based on the concepts that learning should be compelling, failure is a valid technique, and progression can be leveled. We will explore different techniques (leveling and badge systems, and Alternative Reality Games) technology tools that can be used to effectively implement gaming features, and evaluating different gaming strategies. Different platforms like DIY Leaderboards, Google Classroom, and Classcraft will also be explored. Please bring a laptop or iPad for optimal participation.				
<i>Julie Tette NYSMT, Lockport City Schools</i>				
<b>I-03</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Using Hyperdocs in the Science Classroom</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers Chemistry Earth Science				
CTLE Approved: Transform your lessons into interactive multilayered experiences for students. Learn how to create digital interactive Google docs which allow students to collaborate, think critically and connect with a wide audience as well as be used to differentiate instruction.				
<i>Julie Boucher, Williamsville Central School District; Heather Thuman, Williamsville Central School District</i>				
<b>I-04</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>What's Your Problem?</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers Intermediate Level Intermediate Level				
CTLE Approved: We are inspired by a multi-disciplinary approach to problem and project based learning which serves as a model for the new science learning standards and STEAM education at the middle school level. Our community partnerships form a firm foundation for this teaching methodology.				
<i>Diana Danville, Beekmantown Central School; Seth Spoor, Beekmantown Central School</i>				
<b>I-05</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Vexing Volumes, Metric Mathematics, &amp; Darwinian Diet Deliberations</b>				
All levels Gr. 6 - 8 Teachers Applied Sciences Intermediate Level				
CTLE Approved: Discrepant-events with soda pop, sugar, salt and popcorn will be used to model NGSS-aligned, 3-dimensional, Brain-Powered Science Curriculum-Instruction-Assessment. These activities will then be linked to our evolutionary timeline and Darwinian implications that connect modern diets and diseases.				
<i>Thomas O'Brien, Binghamton University, Dept of Education</i>				
<b>I-06</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture</b>
<b>An Innovative Web Approach to Environmental Education: Utilizing Interactive Games, Videos and Curriculum-Aligned Classroom Activities</b>				
Gr. K - 5 Teachers Gr. 6 - 8 Teachers Earth Science Applied Sciences				
CTLE Approved: A demonstration of interactive, online environmental education program that can be done in the classroom and at home. It includes digital videos, "Smart board" games, and NYS curriculum-aligned classroom activities. Vocabulary words with full definitions, plus pre and post evaluations also included.				
<i>Theresa Evans NBCT, Onondaga County Resource Recovery Agency (OCRRA)</i>				

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**I-07                      Monday                      9:30 A.M.-10:30 A.M.                      Conv Ctn    Hands On**

**Safer Chemistry: Green Chemistry Replacements**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Chemistry Chemistry

CTLE Approved: Interested in teaching core chemistry concepts with safer materials? This workshop features NY Regents aligned labs that utilize safer and less expensive materials. Many traditional labs use chemicals that have costs associated with disposal and often put students at risk if not handled properly. Participants will rotate through hands-on stations to collaborate and learn how to "green up" lab experiments in your classroom from experienced Green Chemistry Lead Teachers and Beyond Benign, an organization dedicated to green chemistry principles and practice at the K-12 level.

*Stephen Costanza NYSMT, Whitesboro Central High School; Dana Lindfield-Wadnola NYSMT, Whitesboro Central High School*

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**I-08                      Monday                      9:30 A.M.-10:30 A.M.                      Conv Ctn    Hands On**

**Activities for the Anthropocene**

Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers

Earth Science Biology

CTLE Approved: In this hands-on session, discover classroom activities and interactive online resources to help students explore different aspects of the Anthropocene including human population growth, climate change, changes in biodiversity and land use. The presented activities build knowledge and skills in life and social sciences, while applying learning to authentic problems. Activity formats include data analysis and interpretation, modeling and group problem-solving. Receive electronic versions of materials all matched to NYS P-12 SLS.

*Michael Jabot, SUNY-Fredonia*

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**I-09 & H-09                      Monday                      9:30 A.M.-10:30 A.M.                      Conv Ctn    Hands On**

**Data-generating Simulations that Add Math and Statistics to your APES/IB ESS or AP/IB Biology Course**

Gr. 9 - 12 Teachers College

Biology Professional Development

Take home two activities that teach scientific principles through the generation of data, then use the data set to support a hypothesis with evidence.

*Kristen Dotti, Catalyst Learning Curricula*

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**I-10 & H-10                      Monday                      9:30 A.M.-10:30 A.M.                      Conv Ctn    Hands On**

**Re-align Your Wheels (Don't Reinvent Them)**

Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers

Professional Development Intermediate Level

CTLE Approved: Making the leap to the NYSSLS means analyzing, adapting and extending current lessons in a manner consistent with 3-dimensional instruction. Participants will engage in a 3-D lesson showcasing the instructional strategy of gathering, reasoning, and communicating. Graphic organizers will help center the focus on crosscutting concepts, and the workshop will culminate in exploring phenomena by which to develop your own lesson performance expectations. Sounds daunting? Workshop leaders will walk you through a way to organize this shift in instructional practice at any grade level or subject area.

*Cookie Barker NYSMT, Schroon Lake Central School; Sarah Fink NYSMT, Johnsburg Central School*

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**I-11 & J-11                      Monday                      9:30 A.M.-10:30 A.M.                      Conv Ctn    Hands On**

**STEM Curriculum and Pedagogy: An Integrated Engineering Design Challenge for the Elementary Classroom**

Gr. K - 5 Teachers Gr. 6 - 8 Teachers

Elementary Level Applied Sciences

CTLE Approved: Interested in moving toward an integrative STEM approach to learning? Participants will unpack the NGSS and CCSM standards into a teachable curriculum. In teams, and with provided materials, you will experience an engineering design challenge based on hands-on STEM integration. The facilitator will engage participants in conversation to break down the challenge and the concepts and discuss how STEM teaching promotes success for all learners. It's not required, but recommended that you bring your laptop/tablet to connect to the Internet.

*Sherri Cianca, Niagara University*

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**I-12 & H-12                      Monday                      9:30 A.M.-10:30 A.M.                      Conv Ctn    Hands On**

**Starla's Hands-On Body Systems: Guts-R-Us**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers

Biology Applied Sciences

Participants will build the major organs of the Gastrointestinal Systems out of brightly colored clay. This activity is great in the classroom to guide students to learn the organs, their role in providing nutrition to the body, and their interrelationship with other body system. Participants take their 'guts' home after the workshop!

*Starla Ewan, Byron Martin Advanced Technology Center*

<b>I-14</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture</b>
<b>How do You Read like a Scientist? Using the Scientific Method, of Course!</b>				
Gr. 6 - 8 Teachers		Gr. K - 5 Teachers		Elementary Level Intermediate Level
CTLE Approved: In this session, we'll discuss simple strategies to strengthen literacy skills, while also building critical thinking, and writing and analysis skills, all by looking at text and media in various formats through the lens of the scientific method.				
<i>Kyra Stephenson, Greece, NY; Pam Renfrow, Britannica Digital Learning</i>				
<b>I-15</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Energy and Matter Start with Student Thinking!</b>				
Gr. K - 5 Teachers		Informal Educators		Elementary Level Professional Development
CTLE Approved: How do students learn about big ideas? How can big ideas be experienced appropriately at different grade levels? This study focuses on Energy and Matter as it delves into how student develop concepts. Learn about C-E-R, TERC Inquiry and model building to help develop scientific thinking.				
<i>Elizabeth Barrett-Zahn, Columbus Elementary School, New Rochelle, NY 10801</i>				
<b>I-16</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>Applying The ABC's of Learning in the Secondary Science Classroom in Conjunction with NGSS</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Biology Professional Development
CTLE Approved: In 2016, Schwartz, Tsang, and Blair published "The ABC's of How We Learn: 26 Scientifically proven approaches, how they work, and when to use them". We will deconstruct several of these strategies, including analogy, contrasting cases, and question-driven lessons, as well as applications of each in a new NGSS-centered secondary science classroom. At the close of the session, participants will be able to describe an overview of the book, examine sample applications of various strategies, identify strengths and weaknesses of each, and write their own applications of the strategies.				
<i>Kimberly Alexander, Niagara University; Paul Vermette, Niagara University</i>				
<b>I-19</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Conv Ctn</b>	
<b>Gravitational Waves: A New Era in Astrophysics</b>				
Gr. 9 - 12 Teachers		College		Earth Science Physics
CTLE Approved: The direct detection of gravitational waves from the merger of two black holes represented a landmark moment in physics and the beginning of a new era in astronomy. Some of the most exotic and mysterious phenomena in the universe such as black holes and neutron stars that were previously impossible to probe with light, are now accessible. In this talk, I will explain how ripples in the fabric of the universe were detected, discuss RIT's contribution to the historic discovery, and comment on the astrophysical sources that have been detected, and are expected to be detected in the future.				
<i>Dr. Jason Nordhaus, RIT</i>				
<b>I-26</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Mission to Mars: Problem Based Learning to Teach the Cell from a Different Angle</b>				
Gr. 6 - 8 Teachers		Gr. 9 - 12 Teachers		Intermediate Level Biology
CTLE Approved: The Performance Expectations of the new NYSSLS guidelines outline how our units covering the cell could change moving forward. You will participate in a portion of a problem based project in which students learn cell concepts, as outlined in the PEs, under the umbrella of sustaining life on a mission to Mars (or other planets).				
<i>Chris Grayeski, Penfield CSD; John Grover; Michael Pray, Penfield CSD</i>				
<b>I-27</b>	<b>Monday</b>	<b>9:30 A.M.-10:30 A.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Making Student Thinking Visible</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Biology
CTLE Approved: This workshop introduces research-based strategies to make student thinking visible and improve content knowledge. Strategies will focus on initial thinking, thinking during a task, and revised thinking. Strategies include concept triangles, modeling concepts, visual non-permanent spaces, annotating graphs and diagrams, and picture review game. The techniques shared at this workshop have been used to engage all levels of students in grades 9-12. Participants will have time to explore new strategies and collaborate on improving instruction and student outcomes.				
<i>Kaitlyn Reilley, Bronx Center for Science and Mathematics - NYC Department of Education</i>				

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**I-28**                      **Monday**                      **9:30 A.M.-10:30 A.M.**                      **Radisson Riverside**                      Lecture/Demo

**Kids Afield: Connecting Young Children to Nature Via Digital Cameras**  
 Gr. K - 5 Teachers Gr. 6 - 8 Teachers                      Elementary Level  
 CTLE Approved: The Kids Afield Program seeks to support young children's interest in natural environments via the use of school yard photography. Involving children in natural habitats in a manner rarely engaged in during outdoor play, students become agents of their own explorations through the technology of the camera lens and the shared communication via printouts or online photos this technology supports. Fully applicable to older students with adaptations that will be shared as part of the presentation focusing on both the benefits and how-to of the program.  
*Robin Long, Kids Afield*

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**I-29**                      **Monday**                      **9:30 A.M.-10:30 A.M.**                      **Radisson Riverside**                      Lecture/Demo

**Preparing High School Students for Health Professions Careers with Focus on Early Assurance/Dual Degree Programs**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Colleges Professional Development  
 Help your pre-medical, pre-dental, pre-veterinary, pre-pharmacy, pre-optometry, and other health professions interested students succeed in reaching their goals! Have your questions answered about the special preparation these fields require of students. Learn about the advantages and disadvantages of "early assurance" or "dual degree" programs. We will discuss high school the coursework and experiences required to be successful in competing for admission to these types of college programs. We will also present on the role that AP coursework has in preparing students for these careers.  
*Kevin Wolbach, University of the Sciences in Philadelphia*

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**I-30**                      **Monday**                      **9:30 A.M.-10:30 A.M.**                      **Radisson Riverside**                      Hands On

**Exploring Data Literacy Using Local Environmental Data for NGSS-aligned Curricula**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Biology Chemistry  
 CTLE Approved: In this data literacy workshop, participants will explore a case study on polychlorinated biphenyls (PCBs) in fish from the Hudson River Superfund Site, demonstrating how local data can be incorporated into NGSS-aligned curricula. During this interactive workshop, we will create a conceptual model of what we need to know to understand the movement of contaminants in aquatic ecosystems, provide background information on PCBs in the Hudson River Superfund Site, and explore PCB data from Hudson River fish across time, space, and species in a student friendly, inquiry based format.  
*Rhea Esposito, Cary Institute of Ecosystem Studies*

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**I-40**                      **Monday**                      **9:30 A.M.-10:30 A.M.**                      **Hyatt Regency**                      Lecture/Demo

**Applying Pedagogical Strategies from the book "Make It Stick" to Promote Successful Learning in the Science Classroom**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Biology Physics  
 CTLE Approved: Many students employ faulty strategies that favor short-term memorization to optimize their test grades. These study habits of cramming and re-reading notes do not translate into long-term comprehension of scientific content or themes. Using research-based strategies outlined in Make it Stick, we will discuss shifts in pedagogy, including periodic non-evaluative review techniques, often using simple technologies, as well as strategies that will utilize neuroplasticity to promote interleaving for durable knowledge and empower our students to become enthusiastic, successful lifelong learners.  
*Carisa Steinberg NYSMT, Syosset High School; Richard Slesinski NYSMT, Syosset High School*

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**I-41 & J-41**                      **Monday**                      **9:30 A.M.-10:30 A.M.**                      **Hyatt Regency**                      Hands On

**Using the 5E Instructional Model to Support a District-Wide Transition to Three-dimensional Learning and Assessment**  
 Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Professional Development  
 CTLE Approved: At New Visions for Public Schools (NVPS), we've found that the 5E Model provides a framework that a community of science educators can collaborate around as they develop their understanding of 3D instruction. Additionally, each phase of the 5E Model provides an opportunity to monitor progress toward a 3D learning objective. This session will use curriculum materials collaboratively created and field tested by NVPS Earth Science teachers. Participants will experience the activities as learners and have guided reflection time on how the 5E model supports formative assessment of 3D learning.  
*John Salazar, New Visions for Public Schools; Elizabeth Chatham, New Visions for Public Schools*

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**I-42**                      **Monday**                      **9:30 A.M.-10:30 A.M.**                      **Hyatt Regency**                      Lecture/Demo

**Teaching Climate Change, Energy, and Critical Zone Science:  
Developing Optimally Distinct Approaches to Education Reform**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Professional Development

CTLE Approved: The NGSS and Framework offers a beautiful vision for what science education could be, but the NGSS user-interface is terrible, and there are other problems of design, making implementation very challenging. Innovations that are too different from current practice fail. Innovations that are not different enough from current practice fail to make a meaningful difference. Successful innovations tend to bring familiar ideas or approaches together in unfamiliar ways. This workshop will explore how to bring findings together from innovations research to bear on our educational practice.

*Don Duggan-Haas, The Paleontological Research Institution; Robert M. Ross, The Paleontological Research Institution*

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**I-43**                      **Monday**                      **9:30 A.M.-10:30 A.M.**                      **Hyatt Regency**                      Lecture/Demo

**Climates of the Past : Using Tree Rings, Ice Cores, and Fossils to  
Discover Ancient Climates**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Applied Sciences Intermediate Level

CTLE Approved: Earth's climate has been changing for billions of years. In order to understand climate and make educated future predictions, paleoclimatologists look for clues in Earth's natural environmental records to understand how and why climate has changed throughout Earth history. Clues about the past climate are buried in sediments at the bottom of the oceans, locked away in coral reefs, frozen in glaciers, and preserved in the rings of trees. Each of these natural recorders provides scientists with information about temperature, precipitation, and more.

*Darlene Hunter NYSMT, Averill Park High School; Deborah Mabey NYSMT, Hoosick Falls High School*

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**J-01 & I-01**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**                      Hands On

**Drought in Africa Inspires Students to Invent a Smart Irrigation System**

Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers                      Applied Sciences Biology

CTLE Approved: Come learn how to create a project-based camp or classroom lesson that enables students to apply concepts, such as photosynthesis and the water cycle, to design a smart irrigation system. Inspired by real-world events, students are motivated to apply problem-solving skills and learn some basic programming to come up with innovative solutions to the drought situation in southern Africa.

*Fred Fotsch, Texas Instruments; Erick Archer, Texas Instruments*

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**J-02**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**                      Hands On

**How to Squish STEM into your curriculum!**

Gr. K - 5 Teachers Informal Educators                      Elementary Level Special Ed./ELL

CTLE Approved: Teachers will participate in a hands-on STEM lesson that demonstrates collaboration with community partners to further their understanding of electrical currents. Participants will apply the new NYS Science Standards by using squishy circuits. Squishy circuits use conductive and insulating play dough to teach the basics of electrical circuits in a fun, hands-on way.

*Megan Hahin, Herschell Carrousel Factory Museum; Kim Honeck, Tonawanda City Schools; Renee Brady, Tonawanda City Schools; Carrie Oliver, Tonawanda City Schools*

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**J-03**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**                      Hands On

**Add Excitement to Chemistry with Breakout Boxes**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Chemistry

CTLE Approved: Are you looking for a unique way to foster problem solving skills, decision making processes and leadership opportunities into your chemistry classroom? Tired of pushing content through run of the mill worksheets? BreakoutEDU activities might be just what you need to put some pizzazz into your classroom. Use the activity to enhance student driven learning or for a review exercise to reinforce material already learned. Come and experience the challenge and thrill this activity has to offer your students.

*James Saroka NYSMT, Lansing High School; Terrie Hunter NYSMT, Horseheads High School; Melanie Anastasio NYSMT, Horseheads High School; Ann Phinney-Foreman NYSMT, Horseheads High School*

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**J-04**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**                      Lecture/Demo

**Engage Unlikely Learners with Underwater Robotics**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers                      Physics Applied Sciences

CTLE Approved: Take the plunge and learn how HFM PTECH has used Underwater Robotics as the vehicle to engage reluctant STEM learners. Come see how we use the MATE competition to teach engineering design, computer programming, marketing, physics, environmental science, problem solving and collaboration.

*Jamie Dickinson, HFM PTECH; Heather Buskirk, HFM PTECH*

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**J-05**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Lecture/Demo**

**Using Manipulates and Project-Based Learning to Enhance Learning in the Classroom**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Earth Science Elementary Level

CTLE Approved: Low budget, no budget, no problem! This workshop will focus on using everyday materials and advertisements to enhance the learning in the classroom. It will also include project lessons. All focus on topics in the Earth Science curriculum. Topics include but are not limited to moon phases, interpreting rock strata, and crystal shapes.

*Ryan Frost, Buffalo Public Schools*

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**J-07**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**Implementing and Designing POGIL (Process Oriented Guided Inquiry Learning) Activities with Interactive Simulations**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Chemistry Biology

CTLE Approved: POGIL is an instructional technique that gives students individual roles within a small group to learn concepts via inquiry, promoting more engagement and greater ownership of knowledge. Students typically work together to interpret short readings and diagrams, but interactive simulations may be used to model more dynamic concepts. In this workshop, we will discuss the structure of a POGIL activity, we will look at good resources for online simulations, and we will work together to plan a POGIL activity for your classroom.

*Erin Ratz, NYC Dept of Education*

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**J-08**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**Re-Thinking PD for P-5 Science Teachers: Content-based PD for the new NYS Science Learning Standards**

College Gr. K - 5 Teachers    Professional Development Elementary Level

CTLE Approved: Teachers with a high level of science content knowledge and understanding of students' misconceptions significantly outperform teachers without such knowledge. We have developed 12-hour professional development mini-courses for P-5 teachers that. Each mini-course has a narrow content focus and includes an emphasis on common misconceptions and learning progressions. Courses we have presented include Forces and Motion; Adaptation; Light, Color and Shadows; and Earth, Moon, Sun and Seasons. We will share some sample activities and reflect on our experiences.

*David Henry, SUNY Buffalo State; Michael Jabot, SUNY Fredonia*

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**J-09**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**Describing Data Using Central Tendencies, Graphs and Statistics in AP and IB**

Gr. 9 - 12 Teachers College    Biology Professional Development

CTLE Approved: Collect data on groups of "mice" and use these sample sets to guide students in making good choices in the use of statistical parameters.

*Kristen Dotti, Catalyst Learning Curricula*

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**J-10**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**Teaching The Nature of Science in Your Secondary Classroom**

Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers    Intermediate Level

CTLE Approved: Understanding the nature of science (NOS) is critical for responding to issues of the 21st century, such as global climate change, renewable energy, and genetically modified foods. Our research based presentation summarizes the major theme of NOS and engages participants in fun and thought-provoking activities designed to teach NOS to middle and high school-aged children. These activities are aligned with the NYSSLS framework and we include key resources so that you can use them to enhance your instruction right away!

*Tyler St. Clair, SUNY Potsdam; Randy Bell, Oregon State University*

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**J-11 & I-11**                      **Monday**                      **11:00 A.M.-12:00 P.M.**                      **Conv Ctn**    **Hands On**

**STEM Curriculum and Pedagogy: An Integrated Engineering Design Challenge for the Elementary Classroom**

Gr. K - 5 Teachers Gr. 6 - 8 Teachers    Elementary Level Applied Sciences

CTLE Approved: Interested in moving toward an integrative STEM approach to learning? Participants will unpack the NGSS and CCSM standards into a teachable curriculum. In teams, and with provided materials, you will experience an engineering design challenge based on hands-on STEM integration. The facilitator will engage participants in conversation to break down the challenge and the concepts and discuss how STEM teaching promotes success for all learners. It's not required, but recommended that you bring your laptop/tablet to connect to the Internet.

*Sherri Cianca, Niagara University*

<b>J-12</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Hands On</b>
<b>1 Class Period+ 1 Model System + 2 Cellular Processes= Success 4 Students!</b>				
All levels Informal Educators		Biology Professional Development		
CTLE Approved: Come and learn how encapsulated algae can be used to spark authentic inquiry investigations in your classrooms as you investigate photosynthesis and cellular respiration in tandem with one system, one class period and one CO2 tracking colorimetric solution. Bring cellular processes alive!				
<i>Tamica Stubbs, Bio-Rad Laboratories</i>				
<b>J-14</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>I-PERSIST: First-Year Mentor Program for STEM Persistence</b>				
College Informal Educators		Colleges Professional Development		
Join us for a session taking a closer look at a peer mentor program aimed at the persistence of first-year college students in the STEM fields at Rensselaer Polytechnic Institute (RPI). The goal of the program is to provide support for first-year students in gateway STEM courses with the hopes of keeping them in STEM fields. The program, supported by a \$1.2 million grant from the Howard Hughes Medical Institute, has over 135 mentors and reaches approximately 1400 students every fall.				
<i>Paul Nooney, Jr., Rensselaer Polytechnic Institute</i>				
<b>J-15</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Conv Ctn</b>	<b>Lecture/Demo</b>
<b>Listen Up! Using Podcasts in the Science Classroom.</b>				
Gr. 9 - 12 Teachers Gr. 6 - 8 Teachers		Biology Applied Sciences		
CTLE Approved: Learn about the Galapagos, shark attacks, HIV, and the Challenger disaster from high quality, vetted podcasts. Clips from multiple science-based podcasts will be played, followed by a discussion regarding how they can be used in the classroom. Several podcasts that feature engaging topics and serve as a source of STEM content knowledge will be featured. Methods will be presented for incorporating podcasts into science curricula in a group setting, or as an assignment tailored to fit personalized learning and flipped classrooms.				
<i>Krista Harwick NYSMT, Central Valley Academy</i>				
<b>J-26</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>Environmental Education on the Erie Canal</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers		Earth Science Biology		
CTLE Approved: The Erie Canal can be a resource for science education. Delta Environmental is developing with Corn Hill Navigation, a targeted curriculum aimed at grades 5 through high school, and APES classes about the Erie Canal. Teachers will get a copy of the Environmental Education on the Erie Canal (E3C) Curriculum that uses the protocols for the Finger Lakes Regional Stream Monitoring Network. This workshop will be for teachers looking to tie the Erie Canal into their science programs or for teachers looking to set-up a more general stream monitoring program at their school.				
<i>Kaeti Stoss, Delta Environmental</i>				
<b>J-27</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Radisson Riverside</b>	<b>Lecture/Demo</b>
<b>Online Games: Tapping the Potential Literacy and Problem Solving Skills Among Students</b>				
Gr. 6 - 8 Teachers Gr. 9 - 12 Teachers		Professional Development Intermediate Level		
CTLE Approved: This workshop showcases the different ways students can achieve critical thinking, problem solving and literacy skills while playing online games. While some research shows that online gaming had negative effects on students' academic performance, social interactions, and focus in school, this presentation provides a different perspective in the gaming experiences of middle school and high school students in a K-12 school in Manhattan. Online games can be used as an educational tool to develop students' critical thinking, problem solving and literacy skills.				
<i>MARVIN CADORNIGARA, New Explorations into Science, Technology and Math</i>				
<b>J-28</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Radisson Riverside</b>	<b>Lecture/Demo</b>
<b>What More Can We Find? Observations, Connections, and the Art of Facilitating Deep Scientific Inquiry</b>				
All levels		Elementary Level Biology		
CTLE Approved: The Wild Center is collaborating with four science and art-based institutions to use the Visual Thinking Strategies program (VTS) in order to apply a proven inquiry-based questioning strategy to science education. VTS is a simple, versatile tool that is easy to use and can achieve lasting impacts with a minimal time investment. This session will share best practices for employing the strategy to develop accessible, student-driven, and engaging science lessons.				
<i>Michael Trumbower, The Wild Center</i>				

<b>J-29</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Radisson Riverside</b>	<b>Hands On</b>
<b>STEM behind Hollywood/Health/NASA/Sports</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Biology Physics
Explore STEM concepts behind zombie outbreaks and solve forensic cases. Learn about type 1 diabetes and breast cancer. Dive deeper into these real world concepts with a hands on approach. Attendees will take away free lessons and the software to use in their classrooms.				
<i>Dana Morse, Texas Instruments</i>				
<b>J-30</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Radisson Riverside</b>	<b>Lecture/Demo</b>
<b>Engaging Kindergarteners in Scientific Discussions</b>				
Gr. K - 5 Teachers		Elementary Level Special Ed./ELL		
CTLE Approved: As a part of the "Framework for K-12 Science Education" and the NGSS, teachers today are highly encouraged to provide opportunities for their students to engage in appropriate discourse with other students. This kind of discourse is ideal for helping students begin to make sense of their learning but it is not always easy for teachers to figure out how to accomplish in the classroom. This workshop will share specific strategies teachers can use to help their young students begin to engage in scientific discussions.				
<i>Marie Rice, Rochester City School District</i>				
<b>J-40</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Hyatt Regency</b>	<b>Lecture/Demo</b>
<b>NGSS Physics Activities that get Students Thinking</b>				
Gr. 9 - 12 Teachers		Gr. K - 5 Teachers		Physics Elementary Level
CTLE Approved: In this workshop for physics teachers, participants will have the chance to work (and play) their way through at least two activities tied to the Next Generation Science Standards. Participants will come away with ordering information, worksheets, and some equipment. Topics include forces, waves, and the structure of matter.				
<i>Richard Slesinski NYSMT, Syosset High School; Jamie Rogers NYSMT, Walt Whitman High School; Danielle Rodrigues, Walt Whitman High School</i>				
<b>J-41 &amp; I-41</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Hyatt Regency</b>	<b>Hands On</b>
<b>Using the 5E Instructional Model to Support a District-Wide Transition to Three-dimensional Learning and Assessment</b>				
Gr. 9 - 12 Teachers		Gr. 6 - 8 Teachers		Professional Development
CTLE Approved: At New Visions for Public Schools (NVPS), we've found that the 5E Model provides a framework that a community of science educators can collaborate around as they develop their understanding of 3D instruction. Additionally, each phase of the 5E Model provides an opportunity to monitor progress toward a 3D learning objective. This session will use curriculum materials collaboratively created and field tested by NVPS Earth Science teachers. Participants will experience the activities as learners and have guided reflection time on how the 5E model supports formative assessment of 3D learning.				
<i>John Salazar, New Visions for Public Schools; Elizabeth Chatham, New Visions for Public Schools</i>				
<b>J-42</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Hyatt Regency</b>	<b>Lecture/Demo</b>
<b>Implementing the NYSSLS: Evaluating Resources</b>				
Gr. 9 - 12 Teachers		Professional Development Applied Sciences		
CTLE Approved: The NYSSLS support classroom exploration of problems or phenomena using 3-d learning - the integration of scientific and engineering practices, disciplinary core ideas and crosscutting concepts. Many grade level curricula exist in specific science content areas. This workshop will focus on the evaluation of such curricula in light of the new NYSSLS criteria. Alignment and evaluation tools will be presented, curricula and pedagogical approaches will be discussed, and resources will be shared. Participant are encouraged to bring laptops or tablets.				
<i>Joseph Zawicki, SUNY Buffalo State; Kathaleen Burke, SUNY Buffalo State</i>				
<b>J-43</b>	<b>Monday</b>	<b>11:00 A.M.-12:00 P.M.</b>	<b>Hyatt Regency</b>	<b>Lecture/Demo</b>
<b>Place-Based Learning Though Lyme Disease Ecology</b>				
All levels		Gr. 9 - 12 Teachers		Biology Intermediate Level
CTLE Approved: Lyme disease is a growing threat in the US with approximately 30,000 cases reported per year (CDC). Because of increasing concern in NY about Lyme disease, we have developed and pilot tested a lesson that educates students in grades 5-12 about Lyme ecology through authentic research in their own school yard. The lesson has been tailored to the NYSSLS and uses research from the Cary Institute of Ecosystem Studies to explore concepts like biodiversity, conservation, ecosystems, and disease/host relationships. Attendees will preview the lesson, see classroom results and dispel common tick myths.				
<i>Shelly Forster, Cary Institute of Ecosystem Studies</i>				