

## Schedule of Programs – Wednesday October 23, 2019

Key: **I/G** (Integrated/General Science), **B/LS** (Biology/Life Science), **C** (Chemistry), **E/SS** (Earth/Space Science), **ENV** (Environmental Science), **P/PS** (Physics/Physical Science), **SL/SUP** Science Leaders/Supervision, **T** (Technology)

### 8:00 AM - 9:00 AM

(101) K-5 B/LS, NGSS/NJSLS-S Hands-On Maclean

#### **Making Sense of Sharks**

Have your students learn how sharks use their unique senses and behaviors to survive. Discover how sharks keep our oceans healthy. Dispel the myths and inspire students to learn about shark science instead!

**Presenter(s):** Mindy Voss NJ Sea Grant Consortium

(102) 6-8 NGSS/NJSLS-S Presentation/Lecture Nassau 25

#### **Middle School NJSLS-S lessons that really work !!!**

Standards aligned middle school activities. Students actually doing science!. Activities that really work !

**Presenter(s):** Catherine Justin; Michael McMullen Cinnaminson Middle School

(103) 7-12 NGSS/NJSLS-S, I/G Presentation/Lecture Nassau 28

#### **Student-Driven Comparative Anatomy on a Budget**

Give dissection more meaning, introduce more varied species into your dissections, and use less organisms than student paired dissection, by using a comparative anatomy project.

**Presenter(s):** Erin Sharpe Cedar Creek High School

(104) 9-12 I/G Presentation/Lecture Rush

#### **50 Word Science**

Teachers may integrate writing and technology standards with scientific concepts with mini-sagas. Students are adept at micro-communication and teachers can use this to introduce, review and assess new concepts.

**Presenter(s):** Bruce Ewing Clearview Regional High School

### 8:00 AM - 9:30 AM

(105) 7-12 ENV, NGSS/NJSLS-S Hands-On Wilson

#### **Man vs. Wild: Lessons on the Earth and Human Impacts**

Engage in thought-provoking, multi-disciplinary activities to trace human population changes and impacts on the earth and ecosystems over the past two centuries. Receive lesson plans matched to NGSS/NJSLS-S.

**Presenter(s):** Augusto Macalalag Arcadia University

### 8:30 AM - 9:30 AM

(106) 6-12 C, NGSS/NJSLS-S Discussion Fitzgerald

#### **NGSS and Chemistry: Making it Happen**

Let's discuss and share resources and best practices for aligning our Chemistry instruction to the NGSS standards. What does it look like? What does it NOT look like? What are your favorite resources?

**Presenter(s):** Patti Duncan Retired

(107) 9-12 B/LS, NGSS/NJSLS-S Hands-On Henry

#### **NGSS Infusion Ideas for High School Biology**

Transform your biology instruction into ways that inspire and motivate students to create their own models of understanding.

**Presenter(s):** Suzanne Monkemeier Madison High School

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### 8:30 AM - 9:30 AM

(108) 6-12 C, B/LS Presentation/Lecture Nassau 24

#### **Utilize Instructional Online Tools and Resources to Support and Facilitate the NGSS/NJSLS Process**

Students will engage in inquiry based lessons by exploring and discussing phenomena and creating models via online resources by choosing strategies which supports the NGSS/NJSLS process.

**Presenter(s):** Dr Daniel Duca Jr West Orange High School

(109) 6-8 I/G, P/PS Presentation/Lecture Nassau 27

#### **Learn About Free, Phenomenon-Based Materials for Grades 6-8 Science**

Learn about NJCTL's new phenomenon-based, NGSS/NJSLS-S aligned, free online course materials in mathematics and science. Engage your students and raise achievement with proven, effective teaching practices.

[www.njctl.org](http://www.njctl.org)

**Presenter(s):** Josef Kariuki NJ Center for Teaching and Learning

(110) 8-12 STEM/STEAM, T Presentation/Lecture Nassau 29

#### **Hydrogen Car Challenge**

The Hydrogen Car Challenge is a free STEM competition open to high school students. Students build and race model hydrogen cars that utilize reversible PEM fuel cells. Kit materials are free, fuel cells are loaned.

**Presenter(s):** Kristen Tomasicchio; Melissa McCutcheon TransOptions

(111) 10-12 C, NGSS/NJSLS-S Presentation/Lecture Nassau 30

#### **Understanding Polymerization Reactions**

Students discuss differences of flexible and rigid polyurethane. Then, a polymerization reaction is completed.

Students design their own experiments to determine the cell size and density of samples.

**Presenter(s):** Paul Orbe Union City High School

(112) K-12 STEM/STEAM Presentation/Lecture Witherspoon

#### **Implementing Quality STEM/STEAM Instruction**

Teachers will learn how to construct a high-quality STEM lesson by examining approaches to instruction, components of STEM lessons, assessment in STEM, and how to create STEM rubrics. Samples will be provided.

**Presenter(s):** Emily Osbahr Charles DeWolf Middle School

### 8:30 AM - 10:00 AM

(113) K-12 NGSS/NJSLS-S, SL/SUP Hands-On Bainbridge

#### **Leveraging PLCs to Deepen Student and Teacher Engagement With the NGSS/NJSLS**

How can professional learning focus on meaningful discussions and deepen engagement with the three NGSS dimensions and student learning? We will share strategies used by teachers and coaches around the state.

**Presenter(s):** Stacey van der Veen; Wil van der Veen Leadership in Science

(114) 5-8 E/SS, NGSS/NJSLS-S Hands-On Dod

#### **Helping Students Understand Earth, Sun & Moon Relationships in NGSS/NJSLS Grades 5-8**

Today's workshop will explore engaging strategies designed to help students develop an understanding for why we experience moon phases, eclipses, seasons, and time differences on Earth.

**Presenter(s):** Jonathan Nolde Metuchen Public Schools

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### 8:30 AM - 10:00 AM

(115) K-5 STEM/STEAM, NGSS/NJSLS-S Hands-On Forrester  
**Hello Science, Meet Creative Arts!**

K-5 educators will get creative with their science palette through multisensory, hands-on art activities that support the NGSS/NJSLS-S and be able to walk away with activities that can be easily interwoven into their day.

**Presenter(s):** Jenna Mercury ExploreLearning

(116) 5-10 NGSS/NJSLS-S, I/G Hands-On Lowrie  
**Spectacularly Merging Art, Science & History: Connecting NGSS Practices Beyond the Sciences**

Join the New Jersey State Museum to explore the intersections of scientific understanding, historical context, and artistic vision and design as an approach to strengthening our students' knowledge base.

**Presenter(s):** Dr. Diane Watson New Jersey State Museum

(117) 7-12 B/LS, T Hands-On Mercer  
**P51 Glow Labs: Investigate DNA Structure: The Central Dogma and Enzyme Activity Using Fluorescence**

Go beyond molecular models. Have your students investigate DNA structure directly. Observe transcription and translation in real time. Measure the effect of different variables on enzyme activity. And it glows!

**Presenter(s):** Bruce Bryan; Zeke Alvarez-Saavedra miniPCR

(118) 6-8 E/SS, NGSS/NJSLS-S Hands-On Princeton  
**New GLOBE NGSS-Aligned Weather Curriculum**

Explore weather phenomena with GLOBE Weather! This FREE five-week NGSS based curriculum unit is designed to help middle school students understand weather at local, regional, and global scales.

**Presenter(s):** Denise Magrini; Tiffany Baskerville Mountain View School

### 9:30 AM - 10:30 AM

(119)	K-12	NGSS/NJSLS-S, SL/SUP	Presentation/Lecture	Carnahan
<b>Evolution of Science Education</b>				
This workshop will provide updates on the standards review process, introduce new resources to assist in the review and revision of science curriculum, and provide updates on the science assessment system.				
<b>Presenter(s):</b> Michael Heinz; John Boczany New Jersey Department of Education				

(120) PreK-12 STEM/STEAM, T Presentation/Lecture Maclean  
**Thinking Outside The 3D Printed Box: Using Technology to Enhance Your NGSS Lessons**

3D printers are a great way to introduce engineering concepts and problem-solving skills into your NGSS/NJSLS-S lessons. Here we will learn to go beyond the test print to create engaging, interdisciplinary STEM lessons.

**Presenter(s):** Kara D. Mann Liberty Science Center

(121) 6-12 NGSS/NJSLS-S, P/PS Presentation/Lecture Nassau 25  
**Exploring the Student Response Process Using an NGSS-Aligned Physics Performance Assessment**

The NGSS-NJSLS-S aligned multi-dimensional physics simulation prototype helps examine how students demonstrate science knowledge-in-use. Students can design a real-world physics investigation using digital simulation tools.

**Presenter(s):** Raymond De Hont Educational Testing Service

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### 9:30 AM - 10:30 AM

(122) 5-12 NGSS/NJSLS-S, STEM/STEAM Presentation/Lecture Nassau 28

**Supporting Students Forming Hypotheses/Asking Questions through Scaffolding**

A discussion focused on NGSS performance-based, interactive, rigorous assessments that are achieved by framing and scaffolding goals for student success and educator sanity.

**Presenter(s):** Janice Gobert; Kristina Nicosia Inq-ITS by Apprendis

(123) 9-12 B/LS Hands-On Rush

**Modeling in the High School Biology Class**

Learn how students can model some of the more difficult genetics topics in a high school biology classroom using simple materials. Attendees will receive digital copies of all activities and materials.

**Presenter(s):** Michael Zunick Ridgefield Memorial High School

### 9:30 AM - 11:00 AM

(124) 4-8 NGSS/NJSLS-S, STEM/STEAM Hands-On Campus

**Using Video Phenomenon**

Learn best practices on using live video phenomenon in class. Encourage questioning and explanation of phenomena on camera - a hands-on "discovery" activity to facilitate an engineering challenge.

**Presenter(s):** Lissa Johnson; Dee Kuiken or Lorraine Gueye Mosa Mack Science

### 10:00 AM - 11:00 AM

(125)	4-12	B/LS	Presentation/Lecture	Fitzgerald
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**Visual Perception: The Art of the Brain**

Most people think that perception is passive – like a camera. I will give many examples of how the brain processes information in a much more active and creative way. Your brain is the greatest artist you ever met!

**Presenter(s):** Sabine Kastner Princeton University

(126) 9-12 C, B/LS Hands-On Henry

**Chemistry with a Conscience**

Explore how natural materials can replace harmful chemical reactions in the classroom. By using greener reactions, students can safely investigate their reactions and your lab experiments will be more affordable.

**Presenter(s):** Robert Colvin Morris Knolls High School

(127) 6-12 I/G, Assessment Discussion Nassau 24

**Creating Assessments Based on Science Practices**

3D learning is about integrating content, practices and concepts. How we assess and track these standards can change the focus of the class. We'll show you how to deliberately design assessment to guide learning.

**Presenter(s):** Elise Burns; David Frangiosa Pascack Hills High School

(128) K-12 STEM/STEAM, SL/SUP Discussion Nassau 27

**Let's Improve Student Achievement through STEM Teacher Actions and STEM Certification**

Earning a STEM Teacher Certificate will refine and demonstrate your understanding of 15 Teacher Actions. These engaging, and evidence-based strategies will transform your students' outcomes and energize your campus.

**Presenter(s):** Pam O'Brien STEMscopes / Accelerate Learning Inc

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### 10:00 AM - 11:00 AM

(129) 3-11 NGSS/NJSLS-S, I/G Discussion Nassau 29

#### **Assessing Students' Levels of Reasoning in NGSS Assessments**

This session is to share proposed levels of reasoning demanded of students in sense making in NGSS assessments and to engage experts and practitioners in the discussion on the proposed levels of reasoning.

**Presenter(s):** Shu-Kang Chen ETS

(130) K-12 SL/SUP, NGSS Articulated Presentation/Lecture Nassau 30  
Curriculum K-12

#### **Curricular Articulation and Building NGSS Alignment Within a Spiraling Curriculum**

As administrators, building curriculum articulation teams requires a well constructed mission and vision. Let's take a look at what it takes to lead teams through this process.

**Presenter(s):** Richard Stec West Windsor-Plainsboro Regional School District

### 10:00 AM - 11:30 AM

(131) 6-12 T, All Hands-On Wilson

#### **Revamp Your Review Session! Using Technology to Create Escape Rooms**

Participants will gain a student perspective by completing a digital breakout. An overview on how to create escape rooms using various forms of technology and its classroom application will be discussed.

**Presenter(s):** Dominique DiMeglio; Devon Gardner West Morris Mendham High School

(132) PreK-12 STEM/STEAM, NGSS/NJSLS-S Hands-On Witherspoon

#### **Increasing Opportunities for Equitable Access in Group Work for All Students**

Participants experience strategies to equalize learning by improving collaboration and increasing participation for students engaged in 3D lessons.

**Presenter(s):** Michele Cheyne; Anna Monteiro Knowles Teacher Initiative

### 10:30 AM - 11:30 AM

(133) 6-8 NGSS/NJSLS-S, P/PS Hands-On Bainbridge

#### **Learning About Digital and Analog Signals through GPS Geocaching**

Using Geocaching to teach NGSS MS-PS4-3: Integrate qualitative scientific & technical information to support the claim that digitized signals are more reliable to encode & transmit information than analog signals

**Presenter(s):** Kathryn Galasso New Brunswick Public Schools

(134) 6-12 NGSS/NJSLS-S Hands-On Forrestal

#### **Then & Now**

This round table discussion showcases how 2019 Maitland P. Simmons Memorial Award Scholars have transformed their own lessons to align with NGSS via an NGSX Science Exemplar System for PD training.

**Presenter(s):** Cheryl Zanone NJSTA, Maitland P. Simmons Memorial Award Committee

(135) 8-12 Forensics, NGSS/NJSLS-S Presentation/Lecture Lowrie

#### **Forensics: How to Analyze Skeletons: Case Studies (biology, math, history)**

Students integrate math, science, technology, history and politics while investigating real life situations of skeletal remains. Extensive handouts, website links and references. NGSS/NJSLS\_S Standards addressed.

**Presenter(s):** Patricia Nolan Bertino; Anthony (Bud) Bertino Cengage

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### 10:30 AM - 11:30 AM

(136) 4-12 NGSS/NJSLS-S, STEM/STEAM Hands-On Princeton  
**Quick and Easy Experiments Using the Latest Technology**  
 Help prepare students to meet the NGSS/NJSLS-S and state standards through data-collection experiments that support three-dimensional learning. Collecting and analyzing data has never been easier using Vernier technology.  
**Presenter(s):** Fran Poodry Vernier Software & Technology

### 10:30 AM - 12:00 PM

(137) 2-4 P/PS, NGSS/NJSLS-S Hands-On Dod  
**Elementary Energy (Grade 2-4)**  
 Introduce the comprehensive world of energy - from kinetic to thermal to convection and beyond - with engaging activities. Join us in a hands-on exploration of the conversion of energy from one form to another.  
**Presenter(s):** Roxane Ohl AquaPhoenix Scientific (Kemtec)

(138) 7-12 B/LS, STEM/STEAM Hands-On Mercer  
**Anatomy in Clay MANIKEN Muscles!**  
 Attendees will work 1-on-1 with a MANIKEN, an assortment of clay colors and some modeling tools in order to build portions of the human body.  
**Presenter(s):** Tara Hamilton-Fay Anatomy in Clay Learning System

### 11:00 AM - 12:00 PM

(139) K-5 NGSS/NJSLS-S, T Presentation/Lecture Nassau 25  
**Come see Nat Geo's exciting K-5 Science program!**  
 Our Exploring Science program is being used across NJ to engage and inform students. We will walk through the digital platform to showcase how technology can be used in the classroom to teach Science at Grades K-5.  
**Presenter(s):** Sara Heindorf; Kurt Fritz, Tim Guglielmo National Geographic Learning/ Cengage

(140) 8-12 I/G, Sustainability Presentation/Lecture Nassau 28  
**How to Develop a Capstone Take-Action Plan to Achieve United Nations Sustainability Goals**  
 Learn how to develop an inter-disciplinary capstone project. Students choose one of the UN Sustainability goals to create their own take-action plan with connections to science, math, literature and history.  
**Presenter(s):** Robert Chernow; Ms. Cara Gilligan Randolph Middle School

(141) 3-5 B/LS, STEM/STEAM Hands-On Rush  
**Exploring Adaptations from High Tech to No Tech**  
 Augmented reality and 3-D printing pens will help students explore adaptations and scientific classifications in these two engaging lessons. Additionally provided will be no-tech modifications.  
**Presenter(s):** Aubrey Weibel Liberty Science Center

### 11:00 AM - 12:30 PM

(142) K-12 NGSS/NJSLS-S, SL/SUP Hands-On Carnahan  
**Equitable Access to Science Learning**  
 All students can and should learn complex science. Achieving equity in science ed is an ongoing challenge. Some students face opportunity gaps. We will explore how to avoid accidentally creating opportunity gaps.  
**Presenter(s):** Michael Heinz New Jersey Department of Education

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### 11:00 AM - 12:30 PM

(143)                      1-5                      NGSS/NJSLS-S                      Hands-On                      Maclean  
**NGSS/NJSLS-S and Interdisciplinary Instruction**  
 Provide authentic learning experiences for your students by connecting the NGSS/NJSLS-S with the NJSLS for Math, ELA, Social Studies, and 21st Century skills.  
**Presenter(s):** Debbie Ericksen                      Adamsville Primary School, Bridgewater-Raritan RSD

### 11:30 AM - 12:30 PM

(144)                      5-12                      I/G                      Presentation/Lecture                      Fitzgerald  
**Utilizing Mass Media in the Science Classroom**  
 We are constantly bombarded by scientific information, accurate and inaccurate/biased, through multiple media forms. We'll explore using mass media to get students thinking critically about scientific messaging.  
**Presenter(s):** Dominick Fantacone                      Science Teachers Association of New York State

(145)                      9-12                      B/LS, Social emotional wellness of students                      Hands-On                      Henry  
**Increasing Social Emotional Wellness of Students in Biology Classes**  
 Learn how to better connect with your students while teaching Biology (aligned with NGSS) concepts and investigative skills. Create a learning community within your classroom!  
**Presenter(s):** Suzanne Monkemeier                      Madison High School

(146)                      6-12                      NGSS/NJSLS-S, Literacy                      Presentation/Lecture                      Nassau 27  
**Scaffolding CERs for all Skill Levels: Promoting Independence**  
 We believe that presented with the right scaffold, all students could learn to write a CER. Sentence starters and teacher modeling are beneficial ways to assist students with literacy deficits.  
**Presenter(s):** Laura Locke; Meghan Hannings                      Cinnaminson Middle School

(147)                      K-12                      STEM/STEAM, Leadership                      Discussion                      Nassau 29  
**Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST)**  
 The PAEMST is the highest honor bestowed by the United States government specifically for K-12 science, technology, engineering, mathematics, and/or computer science teaching.  
**Presenter(s):** John D. Moore; Debra Erickson; Vicky Gorman; Peter Dorofy                      Institute for Earth Observations

(148)                      10-12                      C, NGSS/NJSLS-S                      Presentation/Lecture                      Nassau 30  
**Using a Short Film to Teach Chemistry**  
 Film can be a powerful medium to promote student engagement and understanding. Students were tasked with writing a reaction paper after watching a biopic on Fritz Haber.  
**Presenter(s):** Paul Orbe                      Union City High School

### 11:30 AM - 1:00 PM

(149)                      6-12                      NGSS/NJSLS-S                      Hands-On                      Campus  
**NGSS/NJSLS-S Instructional Practices: Developing and Using Models to Teach Science**  
 Participate in a teacher-directed model and a student-designed model to compare the differences. Learn to develop and use models to teach depth, detail, and dynamics.  
**Presenter(s):** Kristen Dotti Catalyst Learning Curricula

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### 11:30 AM - 1:00 PM

(150) K-12 I/G, I/G Demo Nassau 24  
**Basic Maintenance and Repair of Your Microscopes and Balances**  
Basic repair and maintenance of various microscopes and balances, both mechanical and electronic. Demonstration, discussion along with questions and answers.  
**Presenter(s):** Raoul Bovelle New York Microscope Company

### 12:00 PM - 1:00 PM

(151) 3-12 NGSS/NJSLS-S, STEM/STEAM Presentation/Lecture Forrester  
**Tricked Into Thinking**  
Events provides us the opportunity to THINK. Why do some things float and other sink? What happens when you drop a golf ball? Using online simulations teachers and students can be Tricked into Thinking.  
**Presenter(s):** Thom OBrien ExploreLearning

(152) 6-8 STEM/STEAM, I/G Discussion Wilson  
**Hop Onboard the CSEP Train!**  
Learn how your classes can become part of a virtual Clubhouse for Junior Scientists. Extend your students' learning beyond the classroom, while improving scientific literacy around the GLOBE. Hop Onboard!  
**Presenter(s):** Vicky Gorman Medford Memorial Middle School, Medford, NJ

(153) 9-12 STEM/STEAM, NGSS/NJSLS-S Hands-On Witherspoon  
**Integrated-STEM Curriculum for Grades 9, 10, and 11--Resources and Reflections**  
Explore our innovative, teacher-developed, 3-year, core sciences STEM course based on the Global Grand Challenges of engineering in the 21st Century. See curriculum progressions, narrative arcs, and planning tools.  
**Presenter(s):** Katey Shirey Knowles Teacher Initiative

### 12:00 PM - 1:30 PM

(154) K-12 NGSS/NJSLS-S, I/G Hands-On Bainbridge  
**Using Natural Phenomena to Drive NGSS-aligned Instruction and Assessment**  
Understanding of the role of natural phenomena and their connection to Core Ideas is key to NGSS/NJSLS implementation. Join us and learn how to develop natural phenomena and use them to drive instruction and assessment.  
**Presenter(s):** Wil van der Veen; Stacey van der Veen, Leadership in Science LLC, Anne Catena, Princeton University  
Raritan Valley Community College – Science Education Institute

(155) 8-12 B/LS, NGSS/NJSLS-S Hands-On Lowrie  
**The Opioid Epidemic: Exploring the Genetic Associations of Opioid Abuse**  
Students emulate researchers as they design an experiment utilizing a fast electrophoresis protocol of pre-amplified DNA samples that predicts addiction risks for opioid abuse & treatment based a patient's genotype.  
**Presenter(s):** Tamica Stubbs Bio-Rad Explorers

(156) 3-12 NGSS/NJSLS-S, P/PS Hands-On Princeton  
**Using Driving Question Boards and IQWST® Storylines to Motivate Student Learning**  
Learn how the Driving Question Board can be used as a central public artifact on which students' questions and learning experiences all hang together in a coherent storyline.  
**Presenter(s):** Heather Milo Activate Learning



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### 12:30 PM - 1:30 PM

(157) 6-12 E/SS, ENV Hands-On Dod

#### **NJESTA & NASA Presents: Earth Rise with NASA Data**

From satellites to the classroom, MY NASA DATA provides pathways for the integration of NASA satellite data and other resources into your NGSS Earth & Space Science classroom.

**Presenter(s):** Margaret Holzer, PhD; Angela Best Chatham High School

(158) 5-12 Common Core, B/LS Presentation/Lecture Mercer

#### **“Success...NOW that’s what I’m talking about!”**

Great activities to take ordinary students up to extraordinary levels! Great motivational tips and effective study tricks for students to learn how to become successful in any classroom.

**Presenter(s):** Starla Ewan Starla's Creative Teaching Tips

(159) 6-8 B/LS, NGSS/NJSLS-S Presentation/Lecture Nassau 25

#### **Developing Assessments to Support the Teaching and Learning of Science Crosscutting Concepts**

We developed assessment prototypes that focus on two selected Crosscutting Concepts, Systems and System Models and Structure and Function, to support teaching and learning of this often ignored dimension of NGSS.

**Presenter(s):** Shu-Kang Chen; Lei Liu ETS

(160) 6-12 NGSS/NJSLS-S, STEM/STEAM Presentation/Lecture Nassau 28

#### **Strengthening Students’ Hands-On Lab Skills Using Virtual Labs**

NGSS calls students to conduct investigations not cookbook labs, however, students require support to conduct high-quality inquiry. We share our research focused on how to improve students’ hands-on inquiry skills.

**Presenter(s):** Janice Gobert; Rachel Dickler Inq-ITS by Apprendis

(161) 6-12 I/G, Assessment Discussion Rush

#### **How to Move Students from Confusion to Clarity Using a CER**

Writing a CER involves skills crucial to all disciplines. We’ll share routines we’ve developed using the NGSS standards, and how we manage the assessment of CERs without becoming overwhelmed by the volume of work.

**Presenter(s):** Elise Burns; David Frangiosa Pascack Hills High School

### 1:00 PM - 2:00 PM

(162) K-12 I/G, T Presentation/Lecture Fitzgerald

#### **Read, Write and THINK Like a Scientist**

Scientific literacy is ultimately the goal of all science instruction. Learn how the use of digital media & tools from Discovery Education help students master science content through solid instructional practices.

**Presenter(s):** Patti Duncan Discovery Education

(163) 8-12 C Hands-On Henry

#### **Using NGSS Practices to Explore Chemistry Concepts: Constructing Explanations**

An NGSS/NJSLS aligned unit - Use the Flint water crisis as a phenomenon to study chemical reactions and construct an explanation for what caused lead and iron ions to leach into drinking water.

**Presenter(s):** Swati Bulusu Scotch Plains-Fanwood High School

(164) 3-12 STEM/STEAM, Engineering Discussion Maclean

#### **Project RED STEM Curriculum**

At its core Project RED can be summarized as student driven project based learning with real world applications! Designed for elementary, middle, & high school. Blurring the lines between school and industry.

**Presenter(s):** Michael Burghoffer PicoTurbine

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### 1:00 PM - 2:00 PM

(165) K-5 NGSS/NJSLS-S, SL/SUP Presentation/Lecture Nassau 27

#### **Designing and Customizing an Elementary Science Curriculum**

Learn how the Jackson School district designed a curriculum aligned to the NGSS by collaborating with district resources as well as Nasco to create a tailor made program to fit the needs of the district.

**Presenter(s):** Tina Topoleski; Walt Coatsworth, MBA Manager, Regional Sales Nasco Education Nasco

(166) 6-8 STEM/STEAM, NGSS/NJSLS-S Presentation/Lecture Nassau 29

#### **How We Survived A Zombie Apocalypse STEAM Style**

This STEAM project created to engage students in a game setting that challenges them each day to keep as many members of their group from turning into zombies or simply not making it.

**Presenter(s):** Kerri L Mora; Nicole Derise Franklin Avenue Middle School

### 1:00 PM - 2:00 PM

(167) 6-8 I/G, Common Core Presentation/Lecture Nassau 30

#### **Literacy in Science: A Team Approach to CER's**

Improve ability to read, write and reflect in science class. Using CER as a model in collaboration instruction coaches, we will present concrete strategies for enhancing student literacy within the classroom.

**Presenter(s):** Lindsay Heinrich; Jessica Dingman, Luke Mason Randolph Middle School

### 1:00 PM - 2:30 PM

(168)	K-12	NGSS/NJSLS-S, SL/SUP	Discussion	Carnahan
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#### **Appendixes to the NJSLS-S**

How do we integrate P-21 Skills, Career Ready Practices, Technology, Social Emotional Learning, and Interdisciplinary Connections into science units? We will explore and discuss the Appendixes to the NGSS/NJSLS-S.

**Presenter(s):** Michael Heinz New Jersey Department of Education

### 1:30 PM - 2:30 PM

(169) 4-12 C, NGSS/NJSLS-S Presentation/Lecture Nassau 24

#### **Princeton American Chemical Society Outreach Supporting NGSS**

Annual Chemagination competitions, National Chemistry Week, school science visits, science cafe's, teacher and student awards are among programs that are run by Princeton ACS and are effective for 3-D learning.

**Presenter(s):** Randy A Weintraub Lawrence High School

(170) 9-12 B/LS, NGSS/NJSLS-S Hands-On Witherspoon

#### **Hands-On Cellular Transport Modeling Activity**

Using clay, chalk markers, and a phone camera, students will model and record the movement of substances across a membrane for both passive and active cellular transport.

**Presenter(s):** Erin Todd Moorestown HS

### 1:30 PM - 3:00 PM

(171) K-12 STEM/STEAM, E/SS Hands-On Campus

#### **Virtual and Augmented Reality Experiences in STEM Education**

Explore VR and AR and how these programs can change the face of STEM Education: "HoloGLOBE", satellite data in your hands, and the "Lunar Landing Expedition" celebrating the 50th Anniversary of Apollo 11.

**Presenter(s):** John D. Moore; Peter Dorofy Inst. for Earth Observations

## Schedule of Programs – Wednesday October 23, 2019

Key: **I/G** (Integrated/General Science), **B/LS** (Biology/Life Science), **C** (Chemistry), **E/SS** (Earth/Space Science), **ENV** (Environmental Science), **P/PS** (Physics/Physical Science), **SL/SUP** Science Leaders/Supervision, **T** (Technology)

### 1:30 PM - 3:00 PM

(172) K-8 STEM/STEAM, Engineering Hands-On Forrester

#### **Think Like an Engineer with Phenomenal Science Instruction!**

Learn how student internships incorporate the engineering practices from the NJ standards. Engage with hands-on activities, digital tools, and dynamic discussion integrating phenomena-based science instruction.

**Presenter(s):** Tom Gantt Amplify Education

(173) 11-12 B/LS, ENV Demo Wilson

#### **Hypothesis Testing and the Meaning of Statistical Significance**

Learn the rationale behind hypothesis testing methods like Student's t-Test and Chi Square. Participants will leave with a classroom activity where students compare surface areas of sun leaves and shade leaves.

**Presenter(s):** Robert A. Cooper Pennsbury High School

### 2:00 PM - 3:00 PM

(174) 9-12 ENV, T Demo Lowrie

#### **Come see Nat Geo's Environmental Science Programs!**

We will showcase our digital platform for our Environmental Science programs, including on-level and AP courses.

**Presenter(s):** Sara Heindorf; Maxine Dennis, Jeff Anders, Valerie Petroski National Geographic Learning/Cengage

(175) 7-12 B/LS Hands-On Mercer

#### **Taking Mendel Molecular: Add Genotyping to Wisconsin Fast Plant labs!**

Use modern molecular techniques to investigate Mendelian inheritance in Wisconsin Fast Plants. Connect a phenotype, the presence or absence of the purple plant pigment anthocyanin, to its underlying genetic cause.

**Presenter(s):** Bruce Bryan; Zeke Alvarez-Saavedra miniPCR

(176) 6-8 I/G, NGSS/NJSLS-S Presentation/Lecture Nassau 25

#### **Think "Small"!**

Have you ever tried small group instruction in your middle school science classroom? Come explore different strategies used to teach small groups and the impact of learning on middle schoolers.

**Presenter(s):** Rachel Goldberg Chatham Middle School

(177) 5-8 NGSS/NJSLS-S, STEM/STEAM Presentation/Lecture Nassau 28

#### **Giving CER New Life: Using a Zombie Outbreak Scenario to Teach Scientific Explanation Construction**

Constructing scientific explanations is an SEP with which students struggle. Learn how a zombie outbreak scenario was used to design a lesson to give students practice with the claim, evidence, reasoning framework.

**Presenter(s):** Kara D. Mann Liberty Science Center

### 2:00 PM - 3:30 PM

(178) K-12 NGSS/NJSLS-S, I/G Hands-On Bainbridge

#### **Finishing the Job: Modifying "NGSS-Aligned" Curriculum Materials**

Many existing resources claim to be NGSS-aligned, but fail to deliver. Join us to learn how we can best use and/or modify these resources.

**Presenter(s):** Alessandra MacFarlane; Alessandra MacFarlane, Hillsborough Township Public Schools, Stacey van der Veen, Leadership in Science LLC Raritan Valley Community College – Science Education Institute

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### 2:00 PM - 3:30 PM

(179)                      K-2                                      P/PS, Engineering                                      Hands-On                                      Dod

**Force & Motion: Pushes & Pulls**

Come experience hands-on activities for implementing Motion & Stability: Forces & Interactions along with Engineering Design Next Generation Standards in the realm of Pushes & Pulls. Complete with Performance Tasks.

**Presenter(s):** Roxane Ohl AquaPhoenix Scientific (Kemtec)

(180)                      3-12                                      I/G, Pedagogy                                      Hands-On                                      Princeton

**Argument-Driven Inquiry: 3D Investigations that Integrate Science, Literacy and Mathematics**

Learn about Argument-Driven Inquiry and how it can help students learn how to use DCIs, CCs, and SEPs to explain natural phenomena. ADI incorporates literacy and mathematics in science.

**Presenter(s):** Victor Sampson Argument-Driven Inquiry

(181)	K-12	SL/SUP	Discussion	Rush
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**NJSELA Annual Meeting**

Annual meeting for NJSELA members, prospective members -- all administrators responsible for science education and interested guests. We will introduce new officers and plans for the coming year.

**Presenter(s):** Eric Seigal Franklin Board of Ed

### 2:30 PM - 3:30 PM

(182)                      K-12                                      I/G, T                                      Presentation/Lecture                                      Fitzgerald

**21st Century Science Using 21st Century Tools**

What are the latest and greatest technologies and websites for science instruction? Come learn about them and how they can be used.

**Presenter(s):** Patti Duncan Retired

(183)                      6-8                                      C, STEM/STEAM                                      Demo                                      Henry

**Middle School Chemistry Design Challenges - Letting Your Kids Safely "Play" with Chemicals.**

Three chemistry design challenges will be presented including changing factors affecting reaction rate, changing the quantity of reactants, and trying different combinations of exothermic and endothermic reactants.

**Presenter(s):** Bonnie Hohenshilt; Meghan Campion Dwight D. Eisenhower Middle School

(184)                      7-12                                      B/LS, performance assessment writing                                      Hands-On                                      Maclean

**Making a Performance Assessment: Where to start?**

Make and Take performance based assessments. Use a phenomena provided to build your own performance assessment to meet the needs of your students and science content.

**Presenter(s):** Erin Sharpe Cedar Creek High School

(185)                      K-12                                      STEM/STEAM, NGSS/NJSLS-S                                      Hands-On                                      Nassau 27

**Let's Explore the NGSS Using the Phenomenon of Light**

Come see our 5E-based science curriculum that is digitally delivered and written for the NGSS/NJSLS-S and the K-12 Science Framework. We will explore the phenomenon of light to show student engagement and hands-on inquiry.

**Presenter(s):** Pam O'Brien STEMscopes / Accelerate Learning Inc.

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### 2:30 PM - 3:30 PM

(186) 9-12 ENV, E/SS Presentation/Lecture Nassau 29

#### **ENSO & Coastal Upwelling**

In this session, receive materials designed by AMS and NOAA about El Niño-Southern Oscillation and learn how to incorporate phenomena and NGSS/NJSLS standards for Marine, Environmental, or Earth Science course offerings.

**Presenter(s):** Kristen Batko Red Bank Regional High School

(187) 6-8 STEM/STEAM, general science Presentation/Lecture Nassau 30

#### **STEM Non-Fiction Reading for Middle School**

How to incorporate reading non-fiction literature in the science classroom. Suggested readings are provided & follow up STEAM activities. Benefits are emphasized & strategies for different reading levels.

**Presenter(s):** Kim A Long John Adams Middle School