

Schedule of Programs – Wednesday October 20, 2021

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), **Climate/NJ** (Climate Change: Impacts in New Jersey), **Climate/Society** (Climate Change: Impact on Human Society), **Equity/Access** (Equity and Access to Science Education), **3D Assessment** (Constructing Assessment Tasks That Provide Evidence of 3D Science Learning)

08:30 AM-09:30 AM

100 PreK-12 Climate/Society, Climate/NJ Hands-On Dod

Sands-On Science: Making Models to Teach Coastal Climate Change

Teaching about climate change using models made on a teachers salary. View the models, example lessons using these models, and the techniques used to design and build the models.

Presenter(s): Marc Rogoff, NJDEP

08:30 AM-09:30 AM

101 6-12 Climate/NJ, Climate/Society Presentation/Lecture Fitzgerald

The New Jersey Student Climate Challenge: Educating and Empowering Youth for Climate Action

The New Jersey Student Climate Challenge is a pilot program that supports student engagement in climate action. Lessons learned to encourage climate-focused digital storytelling and action projects will be shared.

Presenter(s): Andrea Drewes, Rider University

08:30 AM-09:30 AM

102 6-12 Climate/NJ, STEM/STEAM Presentation/Lecture Henry

Teaching New Jersey's Impacts from Climate Change Through Place-Based and Problem-Based Learning

From the 2020 NJ Scientific Report on Climate Change, local vulnerability assessments, and observations, learn the impacts of climate change happening across our state and supporting teacher resources.

Presenter(s): Allison Mulch, NJ Audubon

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08:30 AM-09:30 AM

103 6-8 STEM/STEAM, I/G Hands-On Lowrie

STEM Activities for the Differentiated Middle School Classroom

Classic STEM activities that have been repurposed to help differentiate learning in an integrated middle school science classroom. You will leave with real ideas you can use immediately!

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

08:30 AM-09:30 AM

104 8-12 Climate/Society, E/SS Hands-On Maclean

Using Climate Proxies to Learn About Earth's Climate History

What was Earth's climate like thousands of years ago? This activity uses the oceanic fossil foraminifera, organisms whose growth patterns differ in warm or cold water, and includes data analysis.

Presenter(s): Stephanie Brunnett, Lab-Aids

08:30 AM-09:30 AM

105 8-12 Equity/Access, STEM/STEAM Presentation/Lecture Nassau 24

An Introduction to Developing a Science Research Program

Science research programs are prevalent in many high-achieving STEM specialized schools, however, we believe ALL students can participate in the scientific method by doing original research.

Presenter(s): Pamela Dixon Kuhn, Science Research for All, Inc

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08:30 AM-09:30 AM

106 K-8 I/G, 3D Assessment Presentation/Lecture Rush

Let's Jam Out!: Exploring Phenomena Through Collaborative Digital Modeling

Ever considered utilizing Google Jamboard to collaboratively model scientific phenomena? In this session, we'll explore how Jamboard can be used to meet this science and engineering practice in any lesson.

Presenter(s): Rachel Goldberg, Chatham Middle School

08:30 AM-09:30 AM

107 PreK-12 ENV, NGSS/NJSLS-S Presentation/Lecture Wilson

The Alliance for NJ Environmental Education, Come Join Us.

This workshop will introduce attendees to a plethora of resources related to environmental and climate change education. ANJEE is the state's leading organization in EE and all K-12 teachers are welcome.

Presenter(s): Laura McCluskey, Alliance for NJ Environmental Education - Program Director

08:30 AM-09:30 AM

108 9-12 Climate/NJ, Climate/Society Presentation/Lecture Witherspoon

NJ State Science Day - NEW and IMPROVED!

Once a series of tests, NJ State Science Day has been re-envisioned to foster growth in science and eng'g practices through authentic, community-based problem solving. Come learn about the new competition!

Presenter(s): Mariel Kolker, Morristown High School

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08:30 AM-09:30 AM

108a 10-12 B/LS Hands-On Carnahan

Let it Glow - The Next Generation Bacteria Transformation Mini-Lab

Ditch the dish and kick the ice bucket!

Transform your GFP Bacterial Transformation Prep and Protocol with the MiniOne gloTrays! A unique student and teacher-friendly take on a classic lab activity.

Presenter(s): Richard Chan San Diego; Ken Valenzano, New Jersey

08:30 AM-09:30 AM

139 PreK-12 NGSS/NJSLS-S, STEM/STEAM Hands-On Mercer

Nature Notes : Nature Journaling is NGSS

Learn how words, drawings and numbers can help students achieve multiple NGSS SEP's and CCC's. Resources and strategies for starting a nature journaling practice.

Presenter(s): Lynn Prosen, Gill St. Bernard's School

08:30 AM-10:00 AM

109 6-12 NGSS/NJSLS-S, Equity/Access Discussion Bainbridge

Creating Learning Progressions

Using the NGSS science practices, we created a series of learning progressions to provide students with checkpoints on their journey to mastery.

Presenter(s): David Frangiosa, Pascack Hills; Elise Burns, Pascack Hills

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10:00 AM-11:00 AM

112 7-12 B/LS, Climate/Society Hands-On Dod

Spread of Disease

Disease spread among animals and people affect population growth. Population growth affects all environments. See how diseases spread in this hands-on activity and how changes in spread affect populations.

Presenter(s): Jacklyn Bonneau, Mass Academy of Math and Science

10:00 AM-11:00 AM

113 9-12 Engineering, NGSS/NJSLS-S Presentation/Lecture Fitzgerald

Integrating an Aviation & Aerospace Program into your School

There is a growing need for pilots to support the global aviation infrastructure. Learn how high schools can support this need by integrating an aviation program to its curriculum.

Presenter(s): Kevin S Doyle, Ed.D., Morris Hills Regional District

10:00 AM-11:00 AM

114 8-12 Forensics, P/PS Presentation/Lecture Lowrie

Make Your Own Inexpensive Forensic Supplies

Create inexpensive materials for blood analysis; fingerprinting, shoe, tire impressions; sand examination; mini-chromatography; glass density, refractive index, fracture patterns. Handouts & display for viewing.

Presenter(s): Patricia Nolan Bertino, retired; Anthony (Bud) Bertino, retired

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10:00 AM-11:00 AM

115 8-12 3D Assessment, P/PS Discussion Rush

Experience Kinematics: Using Real Data to Understand Motion

Learn what representations and data your students can use to bridge phenomena and mathematics, and how to use data tasks to assess 3D kinematics understanding, as opposed to rote algebra skills.

Presenter(s): Christopher Moore, University of Nebraska Omaha

10:00 AM-11:00 AM

116 9-12 Climate/Society, ENV Discussion Wilson

Utilizing Discussions, CER, and Research to Teach Climate Change

Participate in a demo of how to use images, claim, evidence, reasoning, research and discussion boards to foster a class discussion on the major causes of climate change in both small and whole group settings.

Presenter(s): Dennis Dagounis - Roselle Park

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117 PreK-12 SL/SUP Panel Discussion Henry

Recruiting New STEM Teachers

STEM education leaders from across NJ discuss the problem of recruiting new STEM teachers and guiding them through certification. This session will be the launch for the new website www.NJSTEMTeachers.org.

Presenter(s): Douglas Larkin, Ph.D., Montclair State University; Ron Durso, Fairlawn Public Schools; Alicia Killean, Holmdel Township Public Schools; Rich DeVechio, Hackensack Public Schools

10:00 AM-11:30 AM

118 6-8 Climate/Society, NGSS/NJSLS-S Hands-On Maclean

Understanding Global Climate Change on Multiple Scales

Explore global climate change data and human impacts using the Bremerhaven Klimahaus as a model to engage students in asking questions and understanding cause and effect. WiFi enabled device recommended.

Presenter(s): Loris Chen, Retired

10:00 AM-11:30 AM

119 6-12 Equity/Access, P/PS Discussion Nassau 24

APS STEP UP: Evidence-Based Resources to Remove Barriers to Careers in Physics

APS STEP UP offers a perspective to help students see themselves as a “physics person”, building interest in physics careers. NGSS Aligned - Everyday Actions, Careers in Physics, & Women in Physics.

Presenter(s): Shannon Swilley Greco, Princeton Plasma Physics Lab; Jason Sullivan, Montgomery HS

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120 5-9 Engineering, STEM/STEAM Hands-On Witherspoon

MISSION ONE: BRT (Bottle Rocket Transport)

Teachers will work together to design and build their own bottle rocket by using the engineering design process.

Presenter(s): Patricia Hillyer Matawan-Aberdeen Middle School; Darrell Williams, Fischer Middle School (Ewing); Dustin Reynolds, Matawan-Aberdeen Middle School

10:00 AM-11:30 PM

123 7-12 I/G Presentation/Lecture Carnahan

Science Goes to the Movies: Exploring Themes and Techniques for a Variety of Curricula

Science fiction movies provide a great “hook” for teaching science and the socio-political matrices in which they are created. We’ll explore themes as well as the science and art behind Hollywood special effects.

Presenter(s): Dr. William Gutsch, St. Peter's University.

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10:30 AM-11:30 AM

122 9-12 P/PS, Equity/Access Presentation/Lecture Nassau 25

Culturally Relevant Physics with "The New Normal"

Keeping Physics curriculum culturally relevant as the world changes around students and teachers.

Presenter(s): Lucy Moulton, Technology High School, Newark

10:30 AM-12:00 PM

124 3-12 I/G, Equity/Access Hands-On Mercer

Data, Tables, Graphs, Oh My! Beginning Strategies to Bring Real-World Data Literacy into Classrooms

Data are critical in science, 3D teaching, and the 21st century. Join us to leverage how people learn to authentically integrate data skills and literacy into our science content with these beginning strategies.

Presenter(s): Kristin Hunter-Thomson, Dataspire Education & Evaluation, LLC

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11:30 AM-12:30 PM

125 K-5 Climate/NJ, E/SS Hands-On Dod

Extreme Storms Cause Flooding in NJ- How Do We Manage Storm Water?

As global temperatures increase, extreme precipitation is likely to increase. NJ has experienced severe storms that cause flooding. Storm water management practices will be discussed in this hands-on experience.

Presenter(s): Dr. Eva M. Ogens, Ramapo College of New Jersey

11:30 AM-12:30 PM

126 5-8 Climate/Society, 3D Assessment Discussion Fitzgerald

Adapting 3D NGSS Performance Tasks for Interdisciplinary Use with “Think and Discuss” Activities

We will explore how to adapt an innovative racing simulation-based physics task to promote classroom discussion about related real-world impacts on climate change and sustainable energy source alternatives.

Presenter(s): Raymond De Hont, Shu-Kang Chen (ETS)

11:30 AM-12:30 PM

~~127 K-5 STEM/STEAM, NGSS/NJSLS-S Hands-On Lowrie~~

~~Hello Science, Meet Creative Arts!~~

~~Walk away with early education, multisensory, hands-on art activities that can be used to help students make connections and deepen their understanding of K-5 science concepts.~~

~~Presenter(s): Jenna Mercury, ExploreLearning~~

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11:30 AM-12:30 PM

128 6-8 I/G, P/PS Discussion Rush

Then and Now 2

This roundtable discussion shows how the 2021 Maitland P Simmons Awards Committee Scholars have transformed their own lessons to incorporate the OpenSciEd Curricula.

Presenter(s): Christine Lijoi; Cheryl Zanone; 2021 Maitland P Simmons Memorial Award Institute Participants

11:30 AM-12:30 PM

129 7-12 B/LS, T Presentation/Lecture Wilson

Bringing Real Human Genetics Research into Your Classroom

Involving students in research can foster connections with science content, but opportunities are often limited. This session will cover strategies for conducting authentic human genetics research at no cost.

Presenter(s): Robert Pyatt Kean University

12:00 PM-01:00 PM

130 6-12 E/SS, STEM/STEAM Demo Carnahan

How About a Field Trip...to Mars!

Using JMARS software, classroom-based investigations can be integrated with ground-based rover data to create virtual field trips on Mars. Bring a computer - the software is available at <https://jmars.asu.edu/>.

Presenter(s): Eric J Pyle, NSTA President

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12:00 PM-01:00 PM

131 6-8 Climate/Society, STEM/STEAM Presentation/Lecture Henry

Using Climate Change as a Theme for Teaching Science and Engineering

The workshop will introduce and provide examples for a project-based framework that integrates climate science topics and themes with all the science disciplines including engineering and computer science.

Presenter(s): Eugene Cordero, San Jose State University and Green Ninja

12:00 PM-01:00 PM

132 6-12 C, SL/SUP Presentation/Lecture Nassau 25

Laboratory Safety: Getting Back to Normal

In this workshop, teachers and administrators will learn Laboratory Safety concerns focusing on how to keep students, faculty, and infrastructure safe in an inquiry-based learning environment.

Presenter(s): Kevin S Doyle, Morris Hills Regional District; Yvonne Doyle, Morris Hills High School; Travis Everett, Morris Knolls High School

12:00 PM-01:00 PM

133 PreK-12 NGSS/NJSLS-S, Equity/Access Discussion Witherspoon

Focusing Student Learning Using CCCs Lens!

Based on the NSTA CCCs book, we will explore ways in which CCCs can be leveraged as student resources shift from learning about science to becoming the doers of science.

Presenter(s): Guida Faria, NJSTA President, K-12 Science Supervisor Scotch-Plains-Fanwood; Lynn Prosen NJSTA President-Elect, Gill St. Bernard's School

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12:00 PM-01:30 PM

134 K-5 Climate/Society, NGSS/NJSLS-S Hands-On Maclean

Teaching Climate Change in K-5 Classrooms

K-5 teachers will learn to incorporate climate change standards in an interdisciplinary and participatory approach that reflects the pedagogies of inclusion, equity, and phenomenon- and inquiry-based science.

Presenter(s): Liz Carletta, Montclair State University

12:00 PM-01:30 PM

135 4-12 3D Assessment, NGSS/NJSLS-S Presentation/Lecture Nassau 24

Claim, Evidence and Reasoning 2.0

Join us for a session that will highlight the progression of CER in grades 4-12. We will share examples from elementary, middle and high school.

Presenter(s): Justin Perinotti - Chatham, Rachel Goldberg-Chatham, Joseph Gaba-Chatham, Kristen Crawford- Chatham

01:00 PM-02:00 PM

137 6-8 E/SS, NGSS/NJSLS-S Hands-On Dod

Engaging Students in Understanding Weather

Explore free resources for engaging students in understanding weather patterns and the probabilistic nature of weather forecasting. WiFi enabled device recommended (phone will work).

Presenter(s): Loris Chen, Retired

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01:00 PM-02:00 PM

138 K-12 SL/SUP, NGSS/NJSLS-S Discussion Fitzgerald

Setting Teachers & Students Up for Success to Analyze & Interpret Data

Be it Covid or election or something else, data are critical these days. Join to discuss supporting teachers across the district and disciplines to facilitate students using real-world data to learn science content.

Presenter(s): Kristin Hunter-Thomson, Dataspire Education & Evaluation, LLC

01:00 PM-02:00 PM

139 PreK-12 NGSS/NJSLS-S, STEM/STEAM Hands-On Lowrie

Nature Notes : Nature Journaling is NGSS

Learn how words, drawings and numbers can help students achieve multiple NGSS SEP's and CCC's. Resources and strategies for starting a nature journaling practice.

Presenter(s): Lynn Prosen, Gill St. Bernard's School

01:00 PM-02:00 PM

140 PreK-12 SL/SUP, Equity/Access Presentation/Lecture Rush

Where Do I Go from Here? Career Development Options for Science Teachers who Aspire to Do More

This session discusses research experiences for teachers, certifications (additional subjects, teacher leadership, admin), opportunities for graduate study, and other pathways for NJ science teacher development.

Presenter(s): Dr. Doug Larkin, Montclair State University

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01:00 PM-02:00 PM

141 6-12 Equity/Access, C Discussion Wilson

Making Science Inquiry Work for Emergent Bilinguals

Learn how the language and structure of your science inquiry activities can produce roadblocks for emergent bilinguals, and how subtle shifts based on student strengths dramatically increase engagement and success.

Presenter(s): Christopher Moore, University of Nebraska Omaha

01:30 PM-02:30 PM

142 9-12 B/LS, NGSS/NJSLS-S Discussion Henry

Integrating Problem Based Learning and Student Choice into High School Life Science Instruction

Participate in a discussion and presentation of how to purposefully integrate problem based learning into life science instruction while leveraging student choice as part of the assessment process.

Presenter(s): Dennis Dagounis -Roselle Park High School

01:30 PM-02:30 PM

143 6-12 P/PS, NGSS/NJSLS-S Demo Nassau 25

Plasma Physics and Fusion in the Classroom - Hot Topics Aligned to NGSS

Plasma physics and fusion energy are not often taught in middle and high school classrooms, yet they offer ways to connect real-world applications to DCIs such as electricity/magnetism, light, and atomic structure.

Presenter(s): Shannon Swilley Greco, Princeton Plasma Physics Laboratory

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01:30 PM-02:30 PM

144 K-8 NGSS/NJSLS-S, STEM/STEAM Hands-On Witherspoon

Phenomena Based Learning in Science

Explore NGSS (NJSLS-S) phenomena designed to motivate students to figure out why something happens to build three-dimensional understanding. We will engage in the process of sense-making using a sample phenomenon.

Presenter(s): Anthony Bisulca, Liberty Science Center

02:00 PM-03:30 PM

145 6-12 3D Assessment, Equity/Access Discussion Bainbridge

Making Assessment More Meaningful

3D learning is about integrating content, practices and concepts. But how do we make sure assessments are accessible and valuable to students of all abilities?

Presenter(s): David Frangiosa, Pascack Hills; Elise Burns, Pascack Hills

02:00 PM-03:30 PM

146 6-12 Climate/Society, ENV Hands-On Maclean

Teaching the Human Dimensions of Climate Change

Build students analytical and inquiry skills around climate change and its impacts on global communities. Engage in activities that explore human population trends, carbon emissions and climate vulnerabilities.

Presenter(s): Judy Levine, Edison Township Public Schools

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02:00 PM-03:30 PM

147	K-12	SL/SUP	Presentation/Lecture	Nassau 24
New Jersey Science Leadership Association Annual Meeting				
NJSELA is a professional organization that supports leaders in science education. Our annual meeting is open to current and prospective members. A new Executive Committee will be installed at this meeting.				
Presenter(s): Gavin-Quinn - Moorestown/NJSELA, Kristen-Crawford - Chathams/NJSELA				

02:30 PM-03:30 PM

148	5-8	Climate/Society, 3D Assessment	Discussion	Fitzgerald
Transforming Existing Assessment Resources to Support 3D Learning of Engineering Design				
We will discuss an example of transforming a readily available interactive engineering design task to engage students in evaluating 3D design solutions for reducing carbon footprint while improving public safety.				
Presenter(s): Shu-Kang Chen, ETS; Raymond De Hont, ETS				

02:30 PM-03:30 PM

149	4-12	3D Assessment, Equity/Access	Hands-On	Lowrie
Utilizing A Teacher Alert System to Support Student Improvement on Science Practices				
While students conduct inquiry in Inq-ITS, our teacher alerting system identifies students who need help and suggests how to help them in real time, informing 1:1 support, class-wide or differentiated instruction.				
Presenter(s): Janice Gobert, Rutgers University				

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02:30 PM-03:30 PM

150 1-8 STEM/STEAM, P/PS Hands-On Mercer

Investigating Alternative Energy Sources and Physical Science In A Hands On LEGO Education Adventure

Join us to investigate alternative energy source vehicles. You will build a sail car and discuss principles of forces and motion and how using alternative energy sources will reduce the effects of climate change.

Presenter(s): Thomas Taylor, Lego Education

02:30 PM-03:30 PM

151 9-12 Engineering, ENV Presentation/Lecture Rush

Engineering: The Link Connecting Science, Technology and Math in STEM

Presenting a High School pre-college engineering as applied science, in line with by the NGSS Science standards, the NAEP TEL and AE3, based on 12 years of a home grown fundamentals course at Bayonne High School.

Presenter(s): Marie Aloia, Bayonne High School

02:30 PM-03:30 PM

152 6-8 NGSS/NJSLS-S, STEM/STEAM Presentation/Lecture Wilson

Middle School NJSLS-S Lessons That Really Work!

Standards-aligned middle school activities. Students doing science. Activities that teach and are fun.

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

Schedule of Programs – Wednesday October 20, 2021

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), **Climate/NJ** (Climate Change: Impacts in New Jersey), **Climate/Society** (Climate Change: Impact on Human Society), **Equity/Access** (Equity and Access to Science Education), **3D Assessment** (Constructing Assessment Tasks That Provide Evidence of 3D Science Learning)