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| **PROPOSED SCHEDULE - REVISED 01/21/18** |
| **TUESDAY, JANUARY 30TH**  **7:00 a.m. - 7:20 a.m.**  **BREAKFAST SNACKS AND REGISTRATION** |
| **TUESDAY, JANUARY 30TH**  **7:20 a.m. - 7:50 a.m.**  **SECO ANNUAL MEMBERSHIP MEETING** |
| **FIELD TRIP - COLUMBUS IDEA FOUNDRY**  **8:15 a.m. - TRANSPORTATION DEPARTS TO COLUMBUS IDEA FOUNDRY**  **11:30 a.m. - TRANSPORTATION RETURNS TO NATIONWIDE**  The Columbus Idea Foundry is a community of makers, designed to help you explore new ideas and unleash your passion to make things. Tools and technology for you to use, spaces for you to work in, and teachers and like-minded members to help along the way! Whether you're interested in welding or furniture making, building drones or inventing a new video game, launching a start-up or just taking a class -- this community of artists, artisans, techies and entrepreneurs are ready to help. |
| **TUESDAY, JANUARY 30TH**  **8:00 a.m. - 9:00 a.m.**  **CONCURRENT SESSIONS** |
| **#53 - SYCAMORE 1**  **Modeling Inquiry While Investigating Microplastics (PK-12, REM)**  **Lyndsey Manzo, OSU Stone Laboratory and Ohio Sea Grant**  Experience the integration of content, pedagogy and instructional technology. Learn about the environmental impact of plastics pollution through a guided inquiry investigation and Nearpod, an interactive presentation and assessment tool that produces high levels of classroom engagement. |
| **#54 - SYCAMORE 2**  **Nurturing Young Scientists! (PK-5, REA)**  **Janet Struble, The University of Toledo**  **Kevin Czajkowski, The University of Toledo**  **Sara Mierzwiak, The University of Toledo**  Do science and develop literacy skills in grades PK-5 using Elementary GLOBE storybooks. Resources are aligned to Ohio Science Standards and Next Generation Science Standards (NGSS). Receive “Do You Know That Clouds Have Names?” (storybook) along with GLOBE and NASA resources. |
| **#55 - BIRCH 2**  **Grit, The Missing Standard for Success (PK-12, R)**  **Cindy Miller, Muskingum Valley Educational Service Center**  The secret to success in any field isn’t just talent or achievement. It takes a blend of persistence and passion that psychologist Angela Duckworth calls “grit.” Learn about the research and how to grow grit in yourself and your students for future success. |
| **#56 - CYPRESS 1**  **What’s the T? Digital innovation in STEM is more than tech tools** (PK-12, REM)  **Tom Gantt, Amplify Education, Inc.**  Take the challenge to become a true STEM innovator in this bring-your-own-device, hands-on, digital learning session. The “T” is the true development of technology with science students beyond the use of tools! |
| **#57 - DOGWOOD 1**  **STEAM Up your Light Unit with Pinhole Cameras (3-8, DRE)**  **Jessica Horwitz, Mandel Jewish Day School**  Learn how to add a STEAM component to your light unit that has students research, design and create their own pinhole cameras. The pictures taken can be developed in your own classroom dark room! Handouts provided for all activities. |
| **#58 - DOGWOOD 4**  **3-D Landforms Models (PK-12, RE)**  **Ron Fabich, Ohio Earth Science Teachers Association**  Construct a landform model of Mt. St. Helens, pre/post eruption, using topographic mapping skills. This hands-on session is correlated to the Ohio Science Standards for Earth and Space Science, physical Earth surface features and the processes that formed them. |
| **#59 - HICKORY 1**  **Integrating Technical Writing for Student Success (PK-12, A)**  **Angela McMurry, Darke County Educational Service Center**  Is Wikipedia the only source your students use for research? Have you witnessed a science fair fail? Do your students think a conclusion means “the end?” Do your students think “claims and evidence” means “it’s mine and you can’t have it?” Then this session is for you! In this interactive session, participants will learn strategies necessary to inspire students to utilize technical writing to convey research findings.  Research and technical writing is vital for developing real-world applicable critical thinking skills for college and career success. If you have students participating in science fair, Lego, Full-Throttle STEM, robotics, 4-H, FFA, or you simply would like them to be prepared for Ohio’s state assessments, don’t miss out on this opportunity! |
| **#60 - Hickory 2**  **Game-Based Learning in Science (6-12, RM)**  **Diane Vrobel, Archbishop Hoban High School**  This presentation will center on how to introduce science-based games to your classroom to engage students.  Warm-up games, badges and escape rooms will be discussed in this session.  Examples, ideas and digital content will be shared with participants. |
| **TUESDAY, JANUARY 30TH**  **9:10 a.m. - 10:20 a.m.**  **KEYNOTE SPEAKER - BALLROOMS 1, 2, 3 & 4**  **Smithsonian Science Education Center:**  **How are we responding to a changing STEM landscape?**  **brian Mandell, Division Director of Curriculum & Communications,**  **Smithsonian Science Education Center**  The Smithsonian Institution was founded in 1846 with funds from James Smithson according to his wishes “under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men.” Find out how the Smithsonian Science Education Center, the only unit within the Institution that concentrates its efforts on formal education, is executing on his vision and developing a scientifically literate citizenry and 21st century workforce by providing teachers from around the country with a behind the scenes professional development experience at our museums and world-class research facilities, helping teachers develop a deeper understanding of common student misconceptions through the original web series *Good Thinking! The Science of Teaching Science*, and helping them understand the complexity of developing curriculum that focuses on phenomenon and problems, math and literacy, and the arts. Finally, we will discuss the U.S. Department of Education’s Investing in Innovation (i3) validation grant we received in 2010 that unequivocally demonstrated that inquiry-based science improves student achievement not only in science but also in reading and math. |
| **TUESDAY, JANUARY 30TH**  **10:30 a.m. - 11:30 a.m.**  **CONCURRENT SESSIONS** |
| **#61 - SYCAMORE 1**  **How to Help Your Students Fail Forward in science (6-12, R)**  **Samantha Knight, Gahanna City School**  **Katie Printz, Louisville City Schools**  Learn how to help your students in grades 6-12 use "failure" in science as an opportunity for new experiments. Students are becoming so worried about failing and making mistakes, they are not stepping out of their comfort zone to experiment.  Join us to hear how we have started to change how students, parents and administrators view failure in our science classrooms. |
| **#62 - SYCAMORE 2**  **Do, You Do, WE DO! Awakening STEM Learning in Younger Students (PK-5, DREAM)**  **Scott Bloom, Piqua City Schools**  Come and learn how to incorporate design engineering, problem-based learning (PBL), math, science, art, ELA and fun into one small robot!  Participants will get an overview of how to utilize LEGO We Do 2.0 with younger students, and get to try the program out for themselves. |
| **#63 - BALLROOM 1**  **Learning and Teaching about Global Climate Change in the Bahamas and Online (PK-12, RE)**  **Dr. William Slattery, Wright State University**  This session will focus on two courses that support global climate change teaching.  Attendees will learn about an online course that uses real-world situations and data to model Earth systems and climate change learning in PK-12 classrooms and about a summer field course that brings participants to Andros Island Bahamas to learn hands on about climate change. Examples of topics will be presented and discussed. |
| **#64 - BALLROOM 2**  **Questions, Questioning and Orchestrated Classroom Dialogue (PK-12, RA)**  **David Vernot, Butler County Educational Service Center**  Participants will explore ways in which questions and questioning can enhance depth of inquiry into content and engage all students. Topics include creating deep, rigorous, open-ended questions and using questioning strategies and “talk moves” to direct classroom discussion. |
| **#65 - bALLROOMS 3 & 4**  **Dr. Mireya Mayor: “The Female Indiana Jones” - National Geographic Explorer, Primatologist, Anthropologist, Wildlife Expert, Conservationist, Inspirational Speaker, Author and TV Host (PK-12, RE)**  **Dr. Mireya Mayor, National Geographic Explorer, Primatologist, Anthropologist, Wildlife Expert, Conservationist, Inspirational Speaker, Author and TV Host**  Dr. Mireya Mayor is a world-renowned explorer, primatologist and Emmy Award nominated wildlife correspondent for the National Geographic Channel. But the former NFL cheerleader, daughter of Cuban immigrants, and mother of six, is not your typical scientist. Attendees will learn more about Mireya’s fascinating story as she highlights the contributions of women in STEM careers and focuses on the importance of engaging Ohio’s youth in science classrooms. Attendees will leave this session with a toolkit of National Geographic Learning resources that highlight Mireya’s explorations. |
| **#66 - BIRCH 2**  **Making Science and Math Fun with C-STEM (6-12, RM)**  **Leslie Silbernagel, Northwest Local Schools**  Are you looking to start a STEM or coding and robotics program/ club in your district?  Come hear about how the Northwest Local School District implemented the UC Davis C-STEM program and as a result saw improved student achievement. |
| **#67 - CYPRESS 1**  **Getting Middle Schoolers to WANT Science! (6-8, RE)**  **Chris Blackstock, Delta Education**  Come and see proven resources that can provide not only improvements to the hands-on component of your science program, but use the 5E lesson plan to generate student interest and improved performance. |
| **#68 - DOGWOOD 1**  **Growing STEM Learning Gardens (PK-12, RE)**  **Dr. Michelle Fleming, Wright State University**  What do you get when you cross-pollinate technology and gardening? Meaningful science! Our transformative pedagogy includes engaging PK-college students in gardens, democratic STEM practices and new technologies to increase content knowledge and care for their community. We are growing teachers of science who are applying these methods in local schools. From garden media projects and e-books to interactive notebooks and collaborative scientific modeling, we will expand on our work and share the benefits of these learning tools. |
| **#69 - DOGWOOD 4**  **Life in Bloom: Exploring the Role of Hormones in Seed Germination (6-12, RE)**  **Julie Miller, Arabidopsis Biological Resource Center**  **Courtney Price, Arabidopsis Biological Resource Center**  This session will demonstrate how to use Arabidopsis seeds to teach a variety of concepts including the role of hormones in development and the effect of mutations on the phenotype of an organism. |
| **#70 - HICKORY 1**  **Science Literacy Books and Resources Galore (PK-5, A)**  **Cindy Miller, Muskingum Valley Educational Service Center**  Looking for literature and websites that match our science standards? There’s scores of materials here for you to discover! Lots of free resources too! |
| **#71 - HICKORY 2**  **NO Wires… NO Problem!  PASCO Data Collection on ALL Platforms - In Real Time and Remotely (6-12, REM)**  **Julie Thomas, Pasco Scientific**  Explore completely wireless, data logging, sensor data collection on ALL device platforms using the PASCO Scientific SPARKvue software, a 2017 SIIA Codie Award winner for “Best Science Instructional Solution.” Attend this session to see how any student-brought/school-provided device can be used for real-time data collection (that also correlates with Ohio Science Learning Standards).  See what is new with PASCO and have the opportunity to win a wireless sensor. |
| **TUESDAY, JANUARY 30TH**  **11:30 a.m. - 12:15 p.m.**  **LUNCH** |
| **TUESDAY, JANUARY 30TH**  **12:15 p.m. - 1:15 p.m.**  **CONCURRENT SESSIONS** |
| **#72 - SYCAMORE 1**  **Energy 101 (PK-12, RE)**  **Debby Yerkes, Ohio Energy Project**  **Sue Tenney, Ohio Energy Project**  Investigate the basics of energy using hands-on activities, including the ten sources of energy, energy forms and transformations, and energy efficiency. Learn about free opportunities available through the Ohio Energy Project. |
| **#73 - SYCAMORE 2**  **Centering Around Science for PK-2 Teachers (PK-2, R)**  **Meri Johnson, Curriculum Specialist**  Tired of teaching “science through reading?” Science centers differentiate instruction and build foundational skills and experiences so necessary for science learners. Management tips and samples will be shared. |
| **#74 - BALLROOM 1**  **Tech Tools for Teaching Understanding (PK-12, EM)**  **Dave Shellhaas, Midwest Regional Educational Service Center**  This session will introduce participants to several technology tools that can assist teachers in teaching their students for conceptual understanding.  As educators make this shift, they must take advantage of new tools and resources that will engage students and increase their understanding at the same time. |
| **bALLROOMS 3 & 4**  **The Revised Ohio Learning Standards for Science, GrADES 6-12 (6-12, RE)**  **Cathy Holmes, Ohio Department of Education**  **Lydia Hunter, Ohio Department of Education**  **David Schklar, Ohio Department of Education**  Learn about the Revised Ohio Learning Standards for Science and what it means for your classroom. What has changed and what remains the same will be highlighted as well as implications for assessment. |
| **#75 - BIRCH 2**  **Using 3-D Printed Materials to Support Learning in the Biological Sciences (6-12, DRE)**  **Deborah Grzybowski, The Ohio State University**  **Tiffany Wild, The Ohio State University**  This session will focus on using 3-D printed materials to support learning in the biological sciences, specifically cells and organelles. Originally developed to support the learning of students with visual impairments, all students can benefit from these models. Examples of 3-D printed models will be available for exploration. Attendees will learn how the models were developed and used in the classroom. Examples of lesson plans using the models will be presented.  Resources for how attendees can create their own models will be provided. |
| **#76 - CYPRESS 1**  **Keep Them Rolling Along!! (PK-5, RE)**  **Chris Blackstock, Delta Education**  Come have a hands-on experience with materials designed to stimulate student curiosity about science and the motion of objects. Students learn best by DOING and that’s exactly what we will do in this session. |
| **#77 - DOGWOOD 1**  **Number Sense Is Caught, Not Taught (PK-5, RM)**  **Vicki Willett, Licking Heights Local Schools**  This session is primarily geared toward PK-2 teachers, however teachers in higher elementary may benefit from ideas from it as well. Using hands-on materials, educators will be introduced to a variety of activities to help students gain number sense to transport them from counting on to the derived facts stages of mathematics. Think about your students that are still counting all or counting on. What are they missing? It is beyond 6 is 6, no matter if it is 5 and 1 or 3 and 3. It is seeing relationships and how those relationships work with different operations. |
| **#78 - DOGWOOD 4**  **Biomes and Invasive Species (9-12, REA)**  **Denis Baker, LAB-AIDS**  **Bill Cline, LAB-AIDS**  How do the characteristics of a biome determine the plant and animal life found there? How do non-native species survive to become invasive species? In this activity from the SEPUP high school biology program, students match a set of organism cards to proper climate/biome cards, then use literacy strategies to consider the impact of invasive species. |
| **#79 - HICKORY 1**  **A Glimpse into Picture Perfect Science (PK-5, RA)**  **Geri Granger, Columbus City Schools**  **Heather Allen, Columbus City Schools**  Engage in an introduction to the 5E lesson format to teach science, while incorporating fiction and non-fiction children's literature in a meaningful way, using the Picture Perfect Science resource books. |
| **#80 - HICKORY 2**  **Becoming Scientists: Approaching Science Instruction through Authentic Inquiry (PK-12, RE)**  **Abigail Recker, Kent State University**  **Dr. Bridget Mulvey, Kent State University**  Learn simple ways to reframe science instruction to put students in the driver's seat of their own learning! We will provide specific advice to make science learning more authentic, increasing students’ intrinsic motivation to learn. A model unit and associated files will be shared. |
| **TUESDAY, JANUARY 30TH**  **1:15 p.m. - 1:30 p.m.**  **AFTERNOON SNACKS AND BREAK** |
| **TUESDAY, JANUARY 30TH**  **1:30 p.m. - 2:30 p.m.**  **CONCURRENT SESSIONS** |
| **#81 - SYCAMORE 1**  **Bring the Stream into Your Classroom! (6-12, RE)**  **Heather Bryan, Feed the World and Ohio Corn & Wheat**  **Jane Hunt, Feed the World and Ohio Corn & Wheat**  Can't go on a field trip? Bring the stream into your classroom and prepare students to go out and test the local watershed. Learn how to evaluate water quality with macroinvertebrates and chemical testing in order to draw a quality conclusion! One free water quality test kit given away as a part of the Feed the World Program! (Sponsored by Ohio Corn & Wheat) |
| **#82 - SYCAMORE 2**  **Centering Around Science for 3-8 Teachers (3-8, R)**  **Meri Johnson, Curriculum Specialist**  Perplexed on how to differentiate instruction in labs and classroom lessons? Build science concepts with differentiated hands-on centers and learning contracts. Management tips and samples will be shared. |
| **#83 - BALLROOM 1**  **Beta Testing of Fluid Earth Viewer, a Freely Available Digital Tool for Investigating Weather and Climate (PK-12, REM)**  **Jason Cervenec, Byrd Polar and Climate Research Center - The Ohio State University**  **Julien Nicolas, Byrd Polar and Climate Research Center - The Ohio State University**  Fluid Earth Viewer is an intuitive and appealing web application that allows users to visualize current and past conditions of our planet’s atmosphere and oceans. It provides classrooms and the public with information often utilized by the scientific community in an interactive and accessible format. Participants are encouraged to bring a laptop, tablet, or smartphone to interact with the beta version of Fluid Earth Viewer and provide feedback on its classroom applications. |
| **#84 - BALLROOM 2**  **Orbit Earth Expo: An Out of This World Astronomy Experience (PK-12, RE)**  **Ginny Rushing, SparkPoint Innovations**  Taught in the dark, with a light to represent the sun, Orbit Earth Expo brings to life hard-to-teach concepts such as phases of the moon, seasons, tides, patterns in the solar system, eclipses, winds, and more. Experience Orbit Earth Expo as a student and see the many ways it will stimulate student thinking and enrich your curriculum! |
| **#85 - BIRCH 2**  **Who Is Baby Whale’s Father? DNA Fingerprinting Solves the Mystery! (6-12, RE)**  **Richard Chan, MiniOne Systems**  Get hands-on experience on teaching electrophoresis and DNA fingerprinting in one classroom session. Pour, load and run a gel to deduce a probable conclusion for a whale of a mystery. |
| **#86 - CYPRESS 1**  **Explore the Newest E-Units from Project Learning Tree (PK-12, RE)**  **Sue Wintering, Coordinator, Project Learning Tree - Ohio**  *Treemendous Science (K-2), Energy in Ecosystems (4-5),* and *Carbon & Climate (6-8)* are the new online e-units available from Project Learning Tree (PLT). Experience a taste of all in this session, and subscribe to the one that your students will love, and you will have access to PLT's quality-themed learning activities anytime, anywhere! |
| **#87 - DOGWOOD 1**  **Build a Simple STEM Project That Employs Coding, Motors and Magnets (6-12, DREM)**  **Mike Smith, Genoa Christian Academy**  In this session, you will have the opportunity to design, build and program a device to solve a given problem. You will be immersed into the technology, as my students were, and experience the actual use of the scientific method to solve the problem. The equipment that will be used is affordable and proved to be durable after a year of my eighth graders’ abuse. Come learn and play as my students did! |
| **#88 - DOGWOOD 4**  **Energy - Chemical Batteries (6-12, DRE)**  **Denis Baker, LAB-AIDS**  **Bill Cline, LAB-AIDS**  Potential/kinetic transformations and battery use provides context for the activity we’ll do, “Chemical Batteries.” All SEPUP units exemplify STEM and Next Generation Science Standards (NGSS) vision for science and engineering curriculum. |
| **#89 - HICKORY 1**  **save lucy!: a pbl on White nose syndrome (PK-12, REm)**  **Stephanie Nowak, Mentor City Schools**  Learn about White Nose Syndrome and its impact on Ohio bats. What can you do to help? Students become Citizen Scientists, finding ways to spread the word on how to help save these important mammals. This session is designed to be interactive; please bring a device! Nearpod and Live Bat Cams will be explored during this lesson. |
| **#90 - HICKORY 2**  **Earth System Science Project: How to Teach and Assess the Nature of Science (6-12, RE)**  **Dr. Bridget Mulvey, Kent State University**  **Kelly Calvelage, Kent State University and Parma City Schools**  **Mila Rosa Librea-Carden, Kent State University**  **Laura Sass, Kent State University and Bio-Med Science Academy**  **Ian Meiser, Claymont City Schools**  **James Martell, Bio-Med Science Academy**  Learn about a free teacher professional development, Earth System Science, funded by the Ohio Department of Education for secondary science teachers. We will share tips on how to teach about what science is like and assess students’ ideas to inform your instruction. |
| **TUESDAY, JANUARY 30TH**  **2:40 p.m. - 3:40 p.m.**  **CONCURRENT SESSIONS** |
| **#91 - SYCAMORE 1**  **Fun with Ethanol! Engineering Design in the Classroom! (3-12, DRE)**  **Heather Bryan, Feed the World and Ohio Corn & Wheat**  **Jane Hunt, Feed the World and Ohio Corn & Wheat**  Let’s create ethanol! Use the engineering design process to determine the best feedstocks, enzyme usage and fermentation rates for ethanol production. Test your design with a pocket breathalyzer to analyze the ethanol produced. One free "Corn Fermentation in a Bag” test kit given away as a part of the Feed the World Program! (Sponsored by Ohio Corn & Wheat) |
| **#92 - SYCAMORE 2**  **3 Steps to Successfully Implement STEM in your Classrooms (PK-12, RE)**  **Jim Mays, School Specialty**  Discover why STEM education is growing like wildfire, the tools and materials you will need to support STEM (especially for coding and robotics), and how to successfully apply them into your classrooms. |
| **#93 - BALLROOM 1**  **STEM-ulating Simulations (3-12, EM)**  **Kelly Battistone, ExploreLearning**  How STEM-ulating! See first-hand how technology enhances science learning. Explore activities which allow students to simulate research based experiments difficult to replicate in the classroom. Leave with ideas/resources to change the learning environment in your science classroom. Leave STEM-ulated! |
| **BALLROOMS 2, 3 & 4**  **The Ohio Earth Science Teachers Association’s “FAMOUS” Rock Raffle**  This annual rock raffle is once again being sponsored by the Ohio Earth Science Teachers Association (OESTA). Come bid on crystals, minerals, rocks, fossils, books, posters, DVD's, etc. Proceeds benefit the Ohio Earth Science Teacher Mini-Grant Program, which awards three grants up to $250 for classroom or lab needs. |
| **#94 - DOGWOOD 1**  **The Highs and Lows of My First Year Teaching a STEM Course (6-12, REM)**  **Mike Smith, Genoa Christian Academy**  Find out what happens when you’re a high school AP/honors chemistry and physics teacher and you get reassigned to teach an 8th grade STEM course with a focus on coding. Junior high students! Relive my semester and find out why it was one of the best experiences in nearly 40 years of teaching. Attend this hands-on workshop and save yourself from my mistakes! Explore tools I implemented to create a STEM course that used coding to reinforce science concepts. |
| **#95 - DOGWOOD 4**  **1 Class Period + 1 Model System + 2 Cellular Processes = Success 4 Students! (6-12, RE)**  **Tamica Stubbs, Bio-Rad Laboratories**  Come and discover how to utilize encapsulated algae as ecological models to spark unique inquiry-based investigations in your classrooms. Students explore the beneficially cyclic relationships between photosynthesis and cellular respiration. They only need one CO2 tracking colormetric solution and one class period to bring two cellular processes alive! |
| **#96 - HICKORY 1**  **Elementary STEM Resources (PK-6, DR)**  **Bob Claymier, STEM is Elementary**  This session will introduce participants to engineering lessons and resources for grades K-6. The lessons will be correlated to the Ohio Science Standards and resources will include materials, websites and books related to engineering. A brief overview of each lesson or resource will be presented and time will be provided for participants to explore the lessons and resources. Time will also be given for participants to share engineering lessons and resources they have successfully used in their learning environments. All information presented in the session will be available online to participants afterward. |
| **#97 - HICKORY 2**  **Exploring What Science Is Like with Elementary Students (PK-5, REA)**  **Katherine Eagleton, Kent State University and Shaker Heights City Schools**  **Mila Rosa Librea-Carden, Kent State University**  **Tanzimul Ferdous, Kent State University**  **Dr. Bridget Mulvey, Kent State University**  **Abigail Recker, Kent State University**  Learn how to broaden elementary students’ access to science! Picture books offer simple ways to teach about what science is like, while supporting language development. We’ll recommend picture books and provide easy ways to facilitate powerful discussions about the nature of science. |