Greater Houston Area Virtual STEM Conference

March 6, 2021
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Program Session Schedule

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<th>Time</th>
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<td>8:30 am – 9:00 am</td>
<td>Welcome Remarks:</td>
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<td>College of Education Dean Joan Pedro</td>
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<td>President Ira Blake</td>
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<td>Provost Steven Berberich</td>
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<td>Conference Chair Michelle Peters</td>
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<tr>
<td>9:00 am – 10:00 am</td>
<td>1st Session</td>
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<td>10:05 am – 11:05 am</td>
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<td>Lunch/Exhibits</td>
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<td>1:45 pm – 2:45 pm</td>
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<td>2:45 pm</td>
<td>Adjourn</td>
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Conference Exhibitors

Accelerated Learning/STEM Scope
https://www.stemscopes.com/

Armand Bayou Nature Center
https://www.abnc.org/ecoeducation-1

Artist Boat
https://www.artistboat.org/

Children’s Environment Literacy Foundation
https://celfeducation.org/

E.O. Wilson Biodiversity Foundation
https://eowilsonfoundation.org/

ExploreLearning
https://www.explorelearning.com/

Fisher Science Education

Flower Garden Banks National Marine Sanctuary
https://flowergarden.noaa.gov/

Galveston Bay Foundation/Galveston Bay Estuary Program
https://gbep.texas.gov/

hand2mind
https://www.hand2mind.com/
Harris-Galveston Subsidence District WaterWise Program
https://smarteraboutwater.net/

Inspirit
https://www.inspirit.academy/

National Inventions Hall of Fame
https://www.invent.org/programs

National Energy Education Development (NEED) Project
www.NEED.org

Oilfield Energy Center
https://www.oceanstaroec.com/

Project Learning Tree
https://www.plt.org/

Project WILD
https://tpwd.texas.gov/education/project-wild

Rice Office of STEM Engagement (RSTEM)
https://research.rice.edu/rstem/

SAM Labs
https://samlabs.com/us/

Studies Weekly
www.studiesweekly.com

VWR Scientific
https://us.vwr.com/cms/science_education_lab_equipment
Welcome Remarks  8:30 am – 9:00 am

Dr. Ira Blake – President of the University of Houston-Clear Lake
Dr. Joan Pedro – Dean of the College of Education
Dr. Steven Berberich – Senior VP for Academic Affairs and Provost
Dr. Michelle Peters – Conference Chair

Session 1  9:00 am – 10:00 am

Excellent Energy Engineering!
Melanie Harper & Kimberly Swan - National Energy Education Development (NEED) Project

Join us to learn about free resources and exciting, hands-on STEM challenges for your students. Then try your hand with NEED’s “Energy House Challenge” activity sampler. Get comfortable with the engineering design process in your classroom while allowing students to take the rein with this favorite activity.

Students of Color and STEM Education: Experiences Matter
Sheryl Jefferson - Prairie View A&M University

There is a clarion call to increase the number of diverse students pursuing STEM degrees and careers. The discussion will provide teachers with an understanding of the types of resources and experiences that empower diverse students to view STEM education and careers as possibilities for themselves.

Cultivating the Nature of Science in a Virtual Classroom
Omah Williams-Duncan - University of Houston - Clear Lake

Science instruction in online classrooms can include mainly direct teaching strategies instead of inquiry-based instructional strategies. Nature of Science (NOS) principles include attention to inquiry-based instruction. Session participants will experience lessons that facilitate NOS principles without sacrificing inquiry or widening student disparities.
Part of the Mission: Student Participation in Space Science Research
Phyllis Friello & Angela Case - Space Center Houston

Join us and learn how students can become active participants in the space mission by contributing to the wealth of knowledge needed to propel us forward in space exploration.

STEMming Future Social Studies Education
Carol Waters & Mary Curtis – UHCL & University of Texas Arlington

This session explores how the social science and STEM disciplines strengthen the development of foundational, interdisciplinary schemas that have the potential for richer, more extensive learning experiences. Limited teacher knowledge and awareness of curricula connections can impede identifying relevant linkages across content areas.

How to Help Underrepresented Nursing & Engineering Students Succeed in Higher Education
Geny Moreno - University of St. Thomas, School of Nursing & Department of Physics & Engineering

The United States is currently facing an overall nursing shortage. A contributing factor to the underrepresentation of registered nurses is due to a lack of retention and graduation of ethnically diverse nursing students. Another special student population that is underrepresented in higher education are ethnically diverse engineering students.

Utilizing Interactive 3D STEM Simulations to Asynchronous and Online Learning Environments
Amrutha Vasan & Aditya Vishwanath - Inspirit

Learn how to align virtual 3D STEM labs with diverse curriculum, standards, and desired outcomes based on where they do and do NOT add value in learning. Deepen the level of student engagement and critical thinking skills using affordable, accessible, interactive, gamified STEM experiences and student-authored storytelling techniques.

Session 2 10:05 am – 11:05 am

From Failure to a Science Distinction in Two Years
Jean Langevine & Catherine Thomas – Galveston ISD

Using STEM education to move a science department from failure to distinction in two academic years is possible. Artifacts used will be shared in addition to research-based strategies that were employed during the process from failure to a science distinction.
**HOT Science with Artist Boat**  
*Karissa Laffey - Artist Boat*

Do you want to learn some HOT science? This presentation will increase your capacity to teach climate science and demonstrate simple activities to implement in your classroom to introduce your students to credible resources, extreme weather (e.g., hurricanes, large rainfall events), and sea level rise.

**Recruitment and Developing STEM Faculty of Color**  
*Janine Hardy - Seton Hall University*

There is still a national shortage of faculty of color in the STEM fields. One of the reasons is due to the disparity in salary compared to that of White faculty. Faculty of Color are generally not supported in receiving funding for their research--particularly if it has to do with diversity issues. Research on topics pertaining to people of color are often discouraged or passed over because these programs are often devalued by their University departments.

**See Hear Do - Visual, Auditory and Kinesthetic Activities for the Early Childhood Learner**  
*Joy Sloan & Doris Tomas - Oilfield Energy Center*

See Hear Do is a make and take workshop designed to provide several STEM structures that almost any subject content can be incorporated into. Our workshop will provide you with different hands-on strategies that can be applied to almost every topic covered. Use these strategies to engage, explore, explain, evaluate, or enrich your curriculum.

**Leadership and Culture: Fostering a STEM-Driven Growth Mindset**  
*Carol Waters - University of Houston - Clear Lake*

Exposure to integrated STEM curricula in schools is critical to creating opportunities for students, meeting the needs of the U.S. STEM workforce, and building a stronger understanding of STEM application in the real-world. This session explores the importance of school leadership in creating a school culture that embraces a STEM-driven growth mindset to meet these demands.

**Supplemental Instruction: Providing Engaging Instructional Support during a Pandemic**  
*Beth Richards - College of the Mainland*

Supplemental Instruction has been proven to be effective with students taking face-to-face classes since 1976. Due to COVID-19, innovation was necessary to ensure continued student success. Through Teams and Blackboard, interactive session can provide a similar learning experience to help support an array of courses.
Recognizing Student Achievement: Energizing STEM  
*Melanie Harper & Kimberly Swan - National Energy Education Development (NEED) Project*

Looking for your class or after-school club to have an outstanding program in which students learn about energy and STEM? Gain insight and ideas for implementing hands-on, inquiry-based energy and STEM education in your classroom, tips on starting a club, and how to submit an outreach project.

Playful Learning: Engaging STEM Strategies for the Early Childhood Learner  
*Joy Lynn Sloan & Doris Tomas - Oilfield Energy Center*

Keeping students engaged in the learning process takes imagination and careful planning. Our workshop will provide you with different hands-on STEM strategies that can be applied to almost every topic covered. Use these strategies to engage, explore, explain, evaluate, or enrich your curriculum.

Integrating Art into Climate Science  
*Karissa Laffey - Artist Boat*

Creativity is the foundation for advancement in science! Join Artist Boat as we explore how to integrate interpretive art into your curriculum, specifically when it comes to HOT topics like climate change. Learn how students can transform into artists and climate scientists in the classroom.

Cultural Perspective of STEM Education: Leaping the Cycle Forward  
*Christina Crawford, Cassandra Montalto, Katherine Puno-Daquian & Jimmy Newland - Rice University & University of Houston – Main*

To effectively engage students and reach them at their level, the simple introduction of STEM concepts is not enough to encourage students to pursue STEM careers. In this discussion, we will examine cultural stereotypes and barriers that inhibit student STEM success, as well as brainstorm solutions for overcoming these barriers.

Half-Earth Hummingbirds: Exploring Patterns in Evolution and Ecology with the Half-Earth Map  
*Dennis Liu & Jenna Adams - E.O. Wilson Biodiversity Foundation*

Hummingbirds are a charismatic group of animals for exploring patterns in biodiversity and conservation including questions about species habitats, distributions, and range needs. The session will feature four outstanding resources for students to explore and learn, including the E.O. Wilson Biodiversity Foundation’s Half-Earth Map, the Map of Life, the Encyclopedia of
Teaching Basic Principles of Genetics and Cell Biology using Sickle Cell Disease as a Model  
*James Mubiru - College of the Mainland*

Lack of engagement in science courses is acute in minority students. We propose using a one-day inquiry-based lab experience using the sickle cell disease model to teach basic principles of genetics and cell biology to high school students to stimulate their engagement in science.

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Bridging the Gap Between Urban Adolescent Females of Color and STEM  
*Van Truong - Drexel University*

The aim of this presentation is to explore how STEM education can be used as a catalyst to increase access and opportunities for urban adolescent females of color (FoC). A critical and intersectional framework will be used to discuss the importance of informal STEM education as a prominent tool to attract and engage FoC for STEM-related careers.

Engaging Classroom Games and Stem Challenges  
*Doris Tomas & Joy Sloan - Oilfield Energy Center*

Game based learning is a teaching method that allows learners to interact competitively with other students in a fun, nonthreatening manner. Games for other content areas will also be viewed. They will also participate in a STEM challenge using notecards and a sphere, an empty water bottle and a balloon, a balloon, wooden skewer and Vaseline, and a balloon tower.

Getting your STEM to Grow: Strategies for Recruiting and Developing STEM Teachers  
*Colin O’Neal - St. Thomas the Apostle Episcopal School*

How do you get the next Ms. Frizzle or Bill Nye in your school or program? This session will give you key strategies for recruiting the right teachers to fit your program needs, and how to develop those teachers into STEM dynamos.
Developing Mathematics Self-Efficacy in Adolescents: The Promise of America in STEM
Amanda Smith – Alvin ISD

When learning gets tough for gifted adolescents participating in accelerated mathematics coursework, the students need their teacher more than ever. Learn how to cultivate an environment designed to support perseverance through authentic learning opportunities resulting in higher levels of self-efficacy for students. Help students learn to persist through intensive studies in order to develop or sustain STEM career interest.

STEAM & STEM: Working Together to Pinpoint a New Generation
Jordan Tidwell & Kashika Adhikari – T.H. Rogers STEAM Club Houston ISD

Our research refers to the idea of “stereotypes” and adding the A in STEAM to encourage diversity would encourage multiple ethnicities and genders to brainstorm in teams, so we can then broaden the chances of breakthrough ideas. This is the basis for understanding cooperative learning in our current environment. When we keep stereotypes, we’re limiting the potential for children.

Biodiversity Mapping Design: Challenge for Student Teams
Dennis Liu & Amanda Briody - E.O. Wilson Biodiversity Foundation

A team-based mapping activity turns E.O. Wilson’s call to save half the planet for nature into a design challenge for students. An in-classroom and online version of the design challenge will be shared.

Inquiry to Action Framework: Engaging Students in PBL
Lisa Gianukos - Children’s Environmental Literacy Foundation

Explore how to engage middle and high school students in PBL by using CELF’s Inquiry to Action Framework to scaffold a project. This approach will allow for purposeful community-focused projects and student-created assessments. The 6-step approach leads to opportunities for student-driven, place-based solutions to real-world problems.

Rooted in STEM: Activities that will Nurture Students Love for STEM
Jean Langevine – Galveston ISD

Many STEM activities are simple, low cost and can be used to engage students to become creative thinkers and problem-solvers of the future. Participants will be engaged in hands-on activities and discussions on the STEM skills embedded in the activities.
STEM Challenges & More
*Doris Tomas & Joy Sloan - Oilfield Energy Center*

The STEM challenges that will be presented are uncomplicated activities that teachers can use with small groups in a classroom or in an after-school program. These challenges will not break your budget. They are cheap and quick to set up. Come join the fun!

Fostering Student Innovation with Sustainability Based PBL
*Allison Bearden - EcoRise*

Explore how PBL and design thinking can be used to develop environmental stewardship and student innovation. Presented by an EcoRise PBL Teacher Ambassador, attendees will explore authentic driving questions and PBL units that help students to identify campus-based sustainability challenges, and design feasible, impactful solutions.

Nanotechnology in STEM Education
*Selene Verhofstad – Dobie High School Pasadena ISD*

Nanotechnology in STEM education is important from the billions spent on them a year to its prevalence in pop culture, and mainly it’s connections to nature and their relation to STEM. Participants will learn various nanotechnology applications and activity ideas for the classroom.

The DNA of STEAM: Making Sense to Middle and High Schoolers for STEM Careers
*Jordan Tidwell – Bayor College of Medicine & Texas Children’s Hospital*

DNA or Deoxyribonucleic Acid is what makes up our genes and our heredity. DNA in its simplest form means “to make up,” and in this case, what makes up STEAM? Science, Technology, Engineering, Art, and Math? Or Success, Teamwork, Education, Arithmetic, and Motivation? Describing what comprises STEAM in a way that makes sense to Middle & High schoolers serves as the basis for emphasizing STEAM careers and success.

Teaming-Up for STEM
*Robert Jones – University of Houston–Clear Lake*

Teaming Up is a model, which uses teams of 3 or 4 students in conducting hands-on integrated math-science activities. Each member of the group has an assigned role with a list of specific tasks. This session presents the structure, functions, and products generated using Teaming Up for STEM. Hands-on activities will be accompanied by handouts for the roles, tasks, and the various sections of the R&D handbook.
Managing an Inquiry Class: Classroom Management Strategies
Tahirah Wilson & Stafford Wilson – New Caney ISD

"Stop talking!" Have you ever walked down the halls of your academic institution and heard this yelp from the lips of an educator? When chaos was at the brink, threatening to sabotage your well laid lesson plan filled with student engagement and hands-on activities.

2:45 pm Adjourn

Session-at-a-Glance

Session 1 9:00 am – 10:00 am

Excellent Energy Engineering!
Melanie Harper & Kimberly Swan - National Energy Education Development (NEED) Project

Energy House & Excellent Energy Engineering

Students of Color and STEM Education: Experiences Matter
Sheryl Jefferson - Prairie View A&M University

Cultivating the Nature of Science in a Virtual Classroom
Omah Williams-Duncan - University of Houston - Clear Lake

Part of the Mission: Student Participation in Space Science Research
Phyllis Friello & Angela Case - Space Center Houston

DNA Lesson

STEMming Future Social Studies Education
Carol Waters & Mary Curtis – UHCL & University of Texas Arlington

How to Help Underrepresented Nursing & Engineering Students Succeed in Higher Education
Geny Moreno - University of St. Thomas, School of Nursing & Department of Physics & Engineering
Utilizing Interactive 3D STEM Simulations to Asynchronous and Online Learning Environments
Amrutha Vasan & Aditya Vishwanath - Inspirit

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Jean Langevine & Catherine Thomas – Galveston ISD

HOT Science with Artist Boat
Karissa Laffey - Artist Boat

Recruitment and Developing STEM Faculty of Color
Janine Hardy - Seton Hall University

See Hear Do - Visual, Auditory and Kinesthetic Activities for the Early Childhood Learner
Joy Sloan & Doris Tomas - Oilfield Energy Center

See Hear Do

Leadership and Culture: Fostering a STEM-Driven Growth Mindset
Carol Waters - University of Houston - Clear Lake

Supplemental Instruction: Providing Engaging Instructional Support during a Pandemic
Beth Richards - College of the Mainland

Session 3  11:10 am – 12:10 am

Recognizing Student Achievement: Energizing STEM
Melanie Harper & Kimberly Swan - National Energy Education Development (NEED) Project

Energizing STEM

Playful Learning: Engaging STEM Strategies for the Early Childhood Learner
Joy Lynn Sloan & Doris Tomas - Oilfield Energy Center

Playful Learning
Integrating Art into Climate Science
Karissa Laffey - Artist Boat

Climate Science

Cultural Perspective of STEM Education: Leaping the Cycle Forward
Christina Crawford, Cassandra Montalto, Katherine Puno-Daquinag & Jimmy Newland - Rice University & University of Houston – Main

Half-Earth Hummingbirds: Exploring Patterns in Evolution and Ecology with the Half-Earth Map
Dennis Liu & Jenna Adams - E.O. Wilson Biodiversity Foundation

Half-Earth Hummingbirds

Teaching Basic Principles of Genetics and Cell Biology using Sickle Cell Disease as a Model
James Mubiru - College of the Mainland

Lunch/Exhibits 12:10 pm – 12:40 pm

Session 4 12:40 pm – 1:40 pm

Bridging the Gap Between Urban Adolescent Females of Color and STEM
Van Truong - Drexel University

Engaging Classroom Games and Stem Challenges
Doris Tomas & Joy Sloan - Oilfield Energy Center

STEM Challenges

Getting your STEM to Grow: Strategies for Recruiting and Developing STEM Teachers
Colin O'Neal - St. Thomas the Apostle Episcopal School

Developing Mathematics Self-Efficacy in Adolescents: The Promise of America in STEM
Amanda Smith – Alvin ISD
STEAM & STEM: Working Together to Pinpoint a New Generation
Jordan Tidwell & Kashika Adhikari – Houston ISD

Biodiversity Mapping Design: Challenge for Student Teams
Dennis Liu & Amanda Briody - E.O. Wilson Biodiversity Foundation

Biodiversity Mapping Design

Inquiry to Action Framework: Engaging Students in PBL
Lisa Gianukos - Children's Environmental Literacy Foundation

Session 5

1:45 pm – 2:45 pm

Rooted in STEM: Activities that will Nurture Students Love for STEM
Jean Langevine – Galveston ISD

Rooted in STEM

STEM Challenges & More
Doris Tomas & Joy Sloan - Oilfield Energy Center

STEM Challenges

Fostering Student Innovation with Sustainability Based PBL
Allison Bearden - EcoRise

Nanotechnology in STEM Education
Selene Verhofstad – Pasadena ISD/Dobie High School

The DNA of STEAM: Making Sense to Middle and High Schoolers for STEM Careers
Jordan Tidwell – Houston ISD T.H. Rogers STEAM Club

Teaming-Up for STEM
Robert Jones – University of Houston–Clear Lake

Manual & Badges (English) & Badges (Spanish)

Managing an Inquiry Class: Classroom Management Strategies
Tahirah Wilson & Stafford Wilson - New Caney ISD

2:45 pm
Adjourn