

# 10<sup>th</sup> Annual Georgia NASA STEM Conference

## Sessions

### 6<sup>th</sup> – 8<sup>th</sup> Sessions

**Honey, I Took the Moon: Using 3D Printing to Learn about Space Exploration!** Join Dr. Zach to learn and explore how 3D printing supports NASA mission including Artemis. In this session, you will also learn various 3D printing activities to support student learning of STEM Forward to the Moon and that align with NASA's Next Gen STEM program. A brief demonstration of a 3D printer and objects specific to space exploration will be shown. Can't afford a 3D printer? Dr. Zach will discuss opportunities that will meet all budgets. *Presenter: Dr. Zachary Stier, Head of Children's Services at Ericson Public Library, Boone, Iowa.*

**NASA's Commercial Crew Program (CCP):** NASA's Commercial Crew Program (CCP) is the next phase in space transportation, enabling industry to provide safe, reliable and cost-effective access to and from the International Space Station and low-Earth orbit. Learn about NASA's Commercial Crew Program and its efforts to develop and operate a new generation of spacecraft and explore NASA Next Gen STEM CCP educator resources designed to promote student inquiry, problem-solving, application of technology, and group work. *Presenter: Dr. Samuel Garcia, Educator Professional Development Specialist, Kennedy Space Center, Florida.*

**Learning Science Through the Lens of Astronomy:** The Georgia Outreach Team for Space (GOT Space) is an outreach program sponsored by the Georgia Space Grant Consortium (GSGC) which brings accessible, highly interactive presentations and demonstrations which cover a plethora of STEM curriculum topics to K-12 classrooms. This session will showcase two of the program's most popular interactive presentations, 'Galaxies on the Radio' and 'Building M87's Supermassive Black Hole Image.' These presentations delve into the electromagnetic spectrum, behavior of light, temperature and energy, redshift and blueshift, data and graph interpretation, velocity, density, and gravity, and much more by focusing on some of the most interesting celestial objects in the nearby universe. *Presenter: Justin Robinson, Ph.D. Candidate in Astronomy, Georgia State University.*

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### 9<sup>th</sup> – 12<sup>th</sup> Sessions

**The Science of the Climate Crisis:** The presentation for the webinar is intended for use with students who are enrolled in chemistry or physics and higher-level courses. It is designed for use with students working virtually. A version for in-person instruction is available. There are also in-person versions available for middle school students, as well as for high school students enrolled in courses other than chem or physics. To give them the opportunity to think about how their students might think, the webinar will be presented with participants engaged in student mode. *Presenter: Frank Lock, Member, NASA Network of Educator Astronaut Teachers (NEAT).*

**Solar Chemistry!** What chemical compositions do aerospace geologists look for when evaluating a planet, ilmenite and oxygen extraction? This activity will also touch on formation of organic molecules (Miller and Urey's experiment) and panspermia (life is brought to other planets by meteorites). *Presenter: Tina Perkins, Professional Educator; Retired High School Science Teacher.*

**TOUCHDOWN!** A STEAM design challenge to develop and test a soft landing/touchdown for a vehicle containing a delicate payload such as humans. Students will design a way for a spacecraft to slow down and land gently using a shock absorbing system on a moon or planet that may have less atmosphere than earth. Transference of knowledge from Math, ELA and History included to help students design for the future. *Presenter: Belynda Songer, Northside High School/NASA ENDEAVOR Leadership Program.*

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### PK – 2 Sessions

**“A Literate Approach to STEM”:** Enjoy exploring how to integrate STEAM from the books currently being read in your primary classroom! Math and literacy go hand in hand with simple ideas to help your students excel in Science, Technology, Art, Engineering, & Math. Receive lots of resources you can use tomorrow! *Presenter: Dawn Hardy, Perdue Primary/NASA GLOBE and GALILEO Educator.*

**PBS Design Squad Mission: Solar System** – PBS and NASA have teamed up to create a series of challenges for your students! These space-based engineering challenges are mostly designed for older students, but they can be adapted for younger grades. We will work our way through the website, introduce each of the five challenges, and share how you can implement these in your lower grades classrooms! *Presenter: Tami Daniels, STEM Instructor, National STEM Academy, Museum of Aviation.*

**Engineering the Gateway!** As NASA ventures to return to the moon, they will begin Engineering the Gateway that will eventually be the catapult for the next phase of the Artemis mission. Learn more about engineering tasks your students can design and build to help them understand more about the Gateway and the next mission to the moon. *Presenter: Becky Busby, Frank Long Elementary/NASA Space Educator Crew and Solar System Ambassador/Space Foundation Teacher Liaison.*

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### 3<sup>rd</sup> – 5<sup>th</sup> Sessions

**Space – From the Moon to Mars:** Explore why space is important and how learning about space helps integrate STEM in the classroom. Engage in hands-on activities that demonstrate the Forces of Flight, Robotic Exploration, Weightlessness and more! Experience Story Time from Space! *Presenter: Patricia Forehand, STEM Instructor, National STEM Academy, Museum of Aviation.*

**Hands-on Design & Engineering Resources:** Utilizing PBS LearningMedia's engaging activities, participants will become familiar with PBS's hit shows which allow students to build their design and iteration skills, while investigating and solving problems in engineering and aerospace. All of these resources are bookended with digitally integrated instructional strategies. Session Resources list available here: <https://bit.ly/3jkxczD>. *Presenter: Michael Kuenlen, Education Outreach Specialist, GPB Education.*

**DIY Glider Activity:** Illustrates several math concepts and Newton's laws. This session will demonstrate the use of a hands-on project to teach students about the engineering design process and practice applying problem solving and critical thinking skills through the design, build, and test of a small glider aircraft. This is a very open-ended design problem with no right answer. The end result of the project will be a flight test where each student tests their design and creates a short final report on the activity. This activity should be a lot of fun! *Presenter: Dr. Kelly Griendling, Georgia Space Grant Consortium K-12 Outreach Lead.*

### PK – 12<sup>th</sup> Sessions: Final Session 1:30 – 2:30

**Georgia Space Grant Consortium:** Features Space Grant programs and opportunities, the Georgia Institute of Technology Rocket Team along with Warren Eshpeter, President, *Let's Go to Space, Inc.* *Presenter: Lori Skillings, Program Manager, Georgia Space Grant Consortium*