see

February 2-4, 2012

18th Annual **Space Exploration Educators Conference**

SPACE CENTER HOUSTON

EXPLORING NEW HORIZONS

Session Descriptions

Saturday February 4th

Saturday Feb. 4, 2012

8:00AM-9:30AM

Bernoulli Will Never Let You Down (Building the foundations of Flight)

Lori Bradner, Central Fl. Aerospace Academy of Kathleen High School
George Bartuska, Central Fl. Aerospace Academy of Kathleen High School

How does and object with a gross weight of 77.110kg actually stay in the air? Come join us as we engage, explore and explain these and other questions with 5 hands-on classroom experiments and an actual airfoil construction build to elaborate the foundations of flight.
Grades: 6-12 Subjects: Sci, Tech, Math

Classroom Space Camp

Kay Orr Ph.D, Rockwall ISD
Jennifer McCurry, Rockwall ISD

During *"Classroom Space Camp"*, participants will learn how to teach scientific process skills to 2nd-5th grade students through designing, building, and testing simple rockets. They will build and test two types of rockets that can be made in the classroom using lesson plans provided and readily available supplies.
Grades 3-5 Subjects: Sci, Tech, LA, Math

Fly Me to The Moon…..And Beyond with an iPod!

Jennifer Becerra, Dolph Briscoe Middle School Northside ISD
Jennifer St Pierre, Northside ISD

Explore space and exploration using iPods in the classroom. Learn about moon phases, day and night, rotation, revolution, and objects in our solar system. How do we get into space, what equipment do we need to survive and where are we going next? Receive exciting classroom lessons and door prizes.
Grades: K-5 Subjects: Sci, Tech, His

Got Water! Water filtration on Earth and in Space

Robin J. Kennedy, Solar System Educator Project
Joan Labay, Marquez Curington Elem. Gifted and talented Teacher

Come and try an exciting activity that can help you put more engineering in your science curriculum. The design challenge is to build a water filtration device using commonly available materials. To meet this challenge, students use an iterative process as they build, test, and measure the performance of the filtration device, analyze the data collected, and use this information to work towards an improved filtration design. Hear about how scientists are working on ECLSS for NASA. You will see how to teach about satellite images of the "water on our earth" while playing a game.
Grades: 3-8 Subjects: Sci, Tech, Math

Space Exploration Educators Conference (SEEC)

Keep Your Kid's Eyes on The Skies

Cyndi Shaver, Central Appalachian Astronomy Club
Jane Squires, Central Appalachian Astronomy Club

Have you ever considered starting an afterschool astronomy club but didn't know where to start? We will provide you a CD that contains enough hands-on lessons to have a meeting once a month for an entire year. Come have some fun and win door prizes!
Grades: K-8 Subject: Sci, Tech, Math

Kindernauts

Dan Malerbo, Carnegie Science Center

Find out how to excite and involve your youngest students in manned and robotic space exploration. Discover the right hands-on activities that will introduce them to the solar system and concepts of gravity and microgravity. Discover how to introduce your young learners to robotic spacecraft, the space shuttle and the International Space Station. Handouts and door prizes provided.
Grades: K-2 Subjects: Sci, Tech, LA, Math, PE, His

Mapping a Mystery Landscape

Jane Matheson, 8th grade Earth Science Teacher and Curriculum Integrator for Jackson Middle School – a Science and Math Specialty School

In this session you will be representing a NASA Mission team specializing in mapping the elevation of a little known planet. Your mission, should you choose to accept it, is to collect simulated altimeter data on the Challenge landscape (already constructed in a closed container), and then create a 3-D paper profile map of what you think is hidden in the container (the "Result" landscape). At the end of the activity, you'll see how accurately the Challenge and Result landscapes match.
Grades: 6-8 Subjects: Sci, Tech, Math

Mobile Air-powered Recovery System (M.A.R.S)

William Luke, Central Texas College
Gregory Luke, Temple High School

Problem solve and work as a team. This session requires individuals to work as a team to problem solve and communicate, and analyze the results to successfully build a vehicle that travels in a straight line for 5 meters carrying a small cargo.
Grades: 6-12 Subjects: Sci, Tech, Math

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Nova Flight Academy:
Bridging The Cross– Curricular Gap

Bruce Phillips, Jenkins Middle School
Patricia Dwayer Phillips

Imagine the starship enterprise bringing art, English and history students to your space science curriculum. Nova Flight Academy will show you how to use science fiction to link space science to other disciplines. You will take a variety of mini-classes filled with hands-on and cross– curricular ideas and maybe even graduate!
Grades: 9-12 Subjects: Sci, LA, FA, SS, His

Out of the Classroom; Into the Sky! Civil Air Patrol's Teacher Orientation Program (TOP) Flight! (Double Session)

Susan Mallett, Civil Air Patrol
Debbie Dahl, Civil Air Patrol

K-12 teachers! Come join "ground school" and free flight over Houston! This double session will include hands-on activities and free materials. Cameras encouraged!!!
NOTE: Need CAP ID# to participate. After registering for this SEEC session, get your CAP ID# by going to www.capmembers.com/joinaem and use Coupon Code SEEC12 for a special 1/2 price ($17.50) offer.
Grades: K-12 Subjects: Sci, Tech, LA, SS, Math, His

Remote Sensing and Mathematical Modeling Using LEGO Mindstorms Robots. (Double Session)

Fred Stillwell, CEISMC _ Georgia Tech
Jeff Rosen, CEISMC _ Georgia Tech

Using the LEGO Mindstorms NXT system, you will create a robot that will move astronauts from their base to a remote outpost while collecting needed supplies. Your robot will also be mapping your path in order to develop a model of potential resource sites using on-board data logging.
Grades: 3-8 Subjects: Sci, Tech, Math

Rockets – Experimenting with Projectile Flight

Angelo Casaburri, Aerospace Education Services Project / NASA / Johnson

Learn about the history, scientific principles, technology, and mathematics of rockets. Explore instructional techniques for safe indoor and outdoor rockets made from inexpensive materials. Investigate the trajectory relationship between launch angle and range by constructing a rubber-band powered Foam Rocket. Determine the altitude achieved by constructing and launching a High-Power Air Rocket.
Grades: 9-12 Subjects: Science and Math

Science Across the Curriculum

Jeffery Bennett, Big Kid Science

Author of the Max Science Adventure books, The Wizard Who Saved the World, and the world's bestselling college astronomy textbook, will offer a wide-ranging session focusing on his ideas about science teaching and how science can be integrated across the curriculum. He'll also leave time for an open Q&A during which you can feel free to ask him any and all questions you might have about space science, astronomy, global warming, or the nature of science.
Grades: K-5 Subjects: Cross Curriculum

Space Center Houston Presents

Alice Walker, Curriculum Coordinator
Dr. Melanie Johnson, Education Director

No matter where you might be located, Space Center Houston can be a part of your students' world. Find out about our premier methodology and how you can access it for your classroom. Space Center Houston offers a variety of programs for students and teachers both nearby and far away. Provide the relevant and rigorous experiences your students deserve!
Grades: K-12 Subjects: Cross Curriculum

Space Education In Japan

Japan Aerospace Exploration Agency (JAXA)

Japan Aerospace Exploration Agency (JAXA) and experienced Japanese educators present unique teaching methods developed for classrooms in Japan. You will learn interactive and useful teaching methods that provide exciting classroom activities for students. This session is perfect for educators to discuss future collaboration with Japanese educators and foster international relationships.
Grades: 3-12 Subjects: Sci, Tech, Math

Using Space Based Astronomy to Teach the EM Spectrum

Sherre L Boothman, Lehman High School, Hays CISD
Laura Bajza, Lehman High School, Hays CISD

Using NASA's Space-Based Observatories to Teach the EM Spectrum: An overview of NASA'a space-based observatories will be presented with websites for further research. These will include the Compton Gamma Ray Observatory, Fermi Gamma Ray Space Telescope, Chandra X-ray Observatory, Hubble Space Telescope, Galex, and Spitzer Space Telescope. Participants will receive a notebook with information on the observatories themselves, a DVD with the workshop presentation and other materials as well as booklets and posters from the Chandra X-ray Observatory. Websites include access to ready-to-use units for middle school and high school teachers.
Grades: 6-12 Subjects: Science and Technology

Saturday Feb. 4, 2012

10:00am—11:30am

Bring The Constellations To Your Classroom
Dave Schlichting, Eaglecrest High School

Engage your students by having them build 3-dimensional models of constellations in the classroom. Use simple geometry of triangles, azimuth, and altitude to learn the location and distances of stars. Attendees receive all materials and data bases to create constellations and star maps!

Grades: 9-12 Subjects: Science, Math

Colonizing Mars: Newton's Law Behind Building A New Home
Bhavna Rawal, Northbrook High School
Myint Dawlele, Northbrook High School

Have you ever wondered what it would be like to explore Mars? How do our earthly forces compare to those that would be encountered on Mars? This session will utilize hands-on activity to investigate these questions in your class room. You will build a demo Martian housing complex whose structural integrity will be pushed to its limits.

Grades: 6-12 Subjects: Science

Exploration through Lego NXT Robotics.
Suzanne Foxworth, Solar System Educator
Michael Myers, Liftoff & SEEC Alumni

Learn about the role of robots and your students in the future of space exploration. Participants will be programming NXT Robots in hands on activities. Learn how to make NXT Robotics a part of your classroom. There will be door prizes and CD's for participants.

Grades: 3-12 Subjects: Sci, Tech, Math

Google Docs, free cloud technology for your classroom
Robert Radnich, Meadville Area Senior High

Teachers will learn and practice many ways to use Google Docs to have students and teachers collaborate using this modern free cloud technology. (Bring your Laptops if you have them/not required.)

Grades: 6-12 Subjects: Science, Technology

Hands-on Activities that Simulate the Experience of Being an Astronaut.
Dr. Craig Wilson , Texas A&M University & USDA/ARS
Craig Wilson, Ph.D., Texas A&M & USDA/HSINP

Experience what it feels like to be an astronaut.' Try out experiments that allow your students to collect data to study the importance of exercise for astronauts to maintain their musculoskeletal system in microgravity. You and they will also study and experience spatial disorientation. Teacher developed lessons.

Grades: 3-12 Subjects: Sci, Math, PE

LEGO WeDo® Robotics– Ham's Space Adventure
Sharon Young, iSPACE
Sue Hare, iSPACE

LEGO WeDo® Robotics is an ideal tool for engaging early elementary-aged students and introducing them to the exciting world of robotics. You'll be able to create a LEGO model of Ham the Astrochimp and program him to drum some cool rhythms as he celebrates his spaceflight accomplishments. (Watch out Max Q!)

Grades: K-5 Subjects: Sci, Tech, LA, Math, His

Mars Student Imaging Project/Mapping the Surface of a Planet
Jean Pounder, Westhill High School

Come find out about a way for your students to become real space scientist and study the planet Mars. Participants will learn about the Mars Student Imaging Project and explore an example of a past project. We will also explore an introductory activity used in the project and make observations of geologic features and use relative dating techniques to explore the Martian past.

Grades: 6-12 Subjects: Science and Technology

Magic In Your Classroom!
Alexander S Graham
David C White

Come join the fun and learn about using magic in the science classroom to demonstrate concepts and add dimension and participation to your teaching. Participants will engage in hands-on training, which will include tailoring the magic concepts and effects to your specific students and classroom situations!

Grades: K-12 Subjects: Sci, LA, His, Math, FA, SS

Our Space A Better Place NEW!
Marie Kavanagh, University Of Southern Queensland

Learn about the *Our Space a Better Place* program that encourages children and teachers to work together delivering sustainable clean/green projects in their school/community. Receive project plans and posters, make your Aussie OSBP hat, and understand how university students (program mentors) assist young children to be creative and raise aspirations.

Primarily FABulous– We Love K-2… How About You?

Betty Bigney, NASA NEAT, Dixon ES
Sharon McDonald, NASA NEAT

An assortment of primary activities that is hands-on, inexpensive, and FUN. A minimum of twelve activities that your young astronauts will love! Hex nut balloon, Chicken in a cup, Ketchup Cartesian diver, Water Cycle Boogie, Brush Bot, Space Trick Photograph and more! Workshop is done in a center approach so you are doing these experiments yourself. Guaranteed hands-on, fun for all!

Grades: K-2 Subjects: Sci, Tech, Math

Send Your School To Space For A Week!

Bill Decker, Nederland ISD
Keith Clarke, Neaderland ISD

Incorporate all subjects in an inter-disciplinary curriculum on Space Travel. Show the students the connection between not only Math and Science, but also with English, History, Life Skills, and P.E. Receive hand outs and CD'S containing ideas and materials for your Space Week at School.

Grades: 6-12 Subjects: Science, Tech, LA, Math, PE FA, SS, His

Teachers in Space: Your Chance to Go

Edward Wright, Project Manager, Teachers in Space
Maureen Adams, Pathfinder Astronaut Candidate, Teachers in Space

Teachers in Space will provide a status report on its NASA-funded summer workshops program and its long-term goal of putting 1000 astronaut teachers into American schools.

Grades: K-12 Subjects: Cross Curriculum

Theater = Science?

Elaine Lapka, NASA ERC
Angela Case, SEEC Goddess

Educational research shows that multi-sensory teaching produces the best learning. Why? We are hard-wired to engage in our environment through rhythm, sound, and movement. Participate in stories, songs, and hands-on activities that engage students K-12 in learning about our solar system and Newton's Laws. Take home everything you need to guide your students in producing a space science musical.

Grades: K-12 Subjects: Science and Fine Arts

12:45PM-2:15PM

A Hands-on Approach to Combine History and Science

Gregory P. Kennedy, The NASTAR Center

This session illustrates a multidisciplinary method that blends history and science with hands-on activities to engage students. Students construct models and perform experiments that are presented in an historical context. This approach provides a vehicle for students to learn scientific principles and serves as a platform for classroom discussion on the impact of technology on society. Thus, it combines science and social studies in a fun, engaging way.

Grades: 3-8 Subjects: Sci, Tech, LA, SS, His

Boldly Go Where Few Teachers Have gone before

David Davisson, Norman Public Schools
Jane Squires, Central Applachian Astronomy Club

Join us for a look at space exploration using different kinds of telescopes. Find out which kind would work best for you and your students to discover the cosmos. A lucky winner will go home with a free Galileo scope.

Grades: 6-12 Subjects: Sci, Math, His

Game On: Using Video Games to Teach STEM in the Classroom

Adrienne Evans, WisdomTools, Inc.
Dr. Jamie Kirkley, WisdomTools, Inc.

AstroEngineer: Moon Rover™ is a learning game designed to teach middle school students STEM topics including engineering design process and lunar science. This workshop will include an introduction on using video games to teach the game's content, and play time. All educators are encouraged to bring laptops.

Grades: 6-8 Subjects: Science and Technology

Imagine Rockets

Chris Welborn and Nora Rankin, CSC Toys, LLC
Grades 9-12

Come join us for a class using rockets to explore the concepts of mass, inertia, stability, gravity, laws of motion, and chemistry. Make and use a variety of small rockets to demonstrate these principles. Have fun and learn too. Each attendee will make several simple low powered rockets to take home.

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Saturday Feb. 4, 2012

Mission Control - "GO" for Learning - by Becoming an Educational Flight Director of Student Learning

Gregory Pitonza, PhD, Canajoharie Middle School

Using the foundations, organization, strategies and lingo of Mission Control, discover how to become an Educational Flight Director to lead student learning. This overall approach will be demonstrated through problem solving, simulation and project based activities incorporating teamwork, and communication along with realistic and exciting applications of rocket technology.
Grades: K-12 Subjects: Sci, Tech, Math, PE

Newton's Curiosity – Newton's Laws and the Mars Science Laboratory Rover

Dee McLellan, JPL-NASA Solar System Educator, and Jackson Middle School Observatory Coordinator

There is a new rover called Curiosity on its way to Mars. What laws of motion are used to get the rover from Earth to Mars? Learn how to inspire your students by using STEM activities and by connecting them with NASA JPL engineer, Kobie Boykins, to teach the laws of motion using Curiosity as an example.
Grades: 3-8 Subjects: Science and Math

The Scale of the Universe

Jeffery Bennett, Big Kid Science

Imagine yourself as a cosmic giant, able to walk (or float!) among planets small enough to hold in your hand. You'd then be able to see what our solar system really looks like, giving meaning to the word "astronomical." Well, now you can be that giant, by walking through the Voyage Scale Model Solar System at Space Center Houston. Jeffrey Bennett, who started the Voyage project, will lead you on a tour of the Voyage model and then discuss what we learn by viewing the solar system to scale.
Grades: K-12 Subjects: Science

Using Space Theme with Kindergarten Gifted/ Talented Identification

Carol Pagel, Royal ISD
Christi Hicks, Royal ISD

Use Space Theme as a backdrop for Kindergarten Gifted and Talented identification. Activities are K-8 and easily modified to go with other themes.
Grades: K-2 Subject: LA, Math, FA

Tours:

EXPLORE THE HISTORY OF MANNED SPACE FLIGHT

Jeri Brown, NASA Alumni 1964-1998

Your journey into space begins with a tour of Space Center Houston's Starship Gallery and Space Shuttle Mock-up. Trace the progression of America's Manned Space Flight with the actual Mercury "Faith 7" capsule flown by Gordon Cooper, the Gemini V Spacecraft piloted by Pete Conrad and Gordon Cooper, a Lunar Rover Training Vehicle, the Apollo 17 Command Module and the giant Skylab Trainer. Then, explore the Space Shuttle mock-up to find out if you have the right stuff!
Grades K-12

SATURN V AND ROCKET PARK

Travel by tram and take a look at our Mercury- Redstone and Little Joe II rockets. Explore the mighty Saturn V rocket that took astronauts to the moon at our own Rocket Park.
Grades K-12

Follow us on Facebook or Twitter #SEECatSCH to stay updated on conference news and schedule changes.

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- ❑ Starship Gallery and Shuttle Mock-Up

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