Pinball Machines and PBL

Content – Physical Science
Grade – Middle School (6 - 8)
Code – WKS3000
Room – Ballroom Level Room 301B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – October Smith, Lamar CISD

Description – See how middle school students use their knowledge of force, motion and simple machines to construct working table-top pinball machines in this project-based learning environment. Participants will examine a middle school science unit on force and motion looking at interactive science notebooks. Participants will then de-construct the unit and understand the steps needed to create a successful PBL unit using research proven methods such as Understanding [backwards] by Design. Participants will use the knowledge gained, as well as a provided outline, to create their own PBL unit on a topic of their choice. Lesson plans will be shared along with plans for constructing your own table-top pinball machine. (TEKS 6.8A, 6.8B, 6.8E, 8.6A, 8.6B, 8.6C)

T-TESS - Proving You’re Better Than Proficient!

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 - 8), High School
Code – WKS3001
Room – Ballroom Level Room 301C
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Debra Nolte, Huffman ISD
Jim Dees, Huffman ISD

Description – This session will provide secondary science educators with proven strategies to achieve solid marks on the new T-TESS appraisal tool by strengthening their knowledge of the tool, as well as offering innovative classroom practices to help them grow as teachers and improve their instruction. Attendees will learn how to create an open, collaborative classroom environment that maximizes their students' positive response to instructional practices through engaging activities and technology-driven lessons. Participants will leave with ready-made activities in biology, chemistry, and physics that could easily be adjusted for junior high science courses, while receiving invaluable feedback from an administrator currently using the tool to evaluate science teachers K-12.
Making Evolution a Year Long Topic Instead of a Single Unit in Biology

Content – Biology  
Grade – High School  
Code – WKS3002  
Room – Ballroom Level Room 302A  
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Prof. David Downing, Eastfield College  
Bryan Moss, Technology Integration

Description – Evolution is a key principle throughout all topics in Biology. Success on the EOC is critical to being able to understand how evolutionary theory connects all the individual units. We’ll discuss how to organize your course to bring the evolution topic outside of being a single unit. You will leave with some evolution course materials to bring back to your classroom!

ISEA Presents: Engaging Your Students at Home and in the Classroom: Building a YouTube channel

Content – Instructional Strategies / Pedagogy  
Grade – All  
Code – WKS3003  
Room – Ballroom Level Room 302B  
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Brooke Miller, The University of Texas at Austin

Description – Many science teachers have created YouTube channels that they use to engage students both inside and outside of the classroom. In this session, we will cover how your class can benefit from a YouTube channel, and the different ways you can go about creating and editing video content.

DNA is the Flash of Biotechnology

Content – Biology  
Grade – High School, College  
Code – E/PD3004  
Room – Ballroom Level Room 302C  
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Ellyn Daugherty, Biotechnology Educator  
Oralia Gil, Fisher Science Education
Description – DNA is the flash but proteins are the cash of biotechnology. In this hands-on workshop, participants will learn how to (in 1-2 class periods) confirm a DNA sample that codes for the production of a real biotechnology protein product, bacterial amylase.

### Build It to Learn It: Anatomy in Clay

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**Presenter(s)** – Carolyn Hess, Anatomy In Clay Learning System

Description – Build It to Learn It: Anatomy in Clay Explore a hands-on, kinesthetic technique of building human anatomy in clay on hand-held skeletal models. This engaging experience promotes innovation and active learning in your classroom, leading all students to success! In this workshop you will build muscles and other body systems in clay. This system is a perfect fit for CTE, NGSS, and STEAM pathways.

### The Cellular Landscapes of David Goodsell: Biology at the Mesoscale

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**Presenter(s)** – Dr. Margaret Franzen, Milwaukee School of Engineering  
Gina Vogt, 3d Molecular Designs

Description – Connect microscopic and molecular views of the cell using a unique teaching tool – the vibrant, accurate and engaging cellular landscapes by David Goodsell. These watercolor paintings have been converted to posters representing the crowded environment of a cell – packed full of proteins, jostling around, trying to do their job. Landscapes help students connect concepts such as DNA replication, protein synthesis, energy production, signal transduction across a synapse and antibody secretion. We’ll demonstrate how these landscapes and ancillary grayscale images can be used to teach such diverse concepts as molecular transport, protein synthesis, compartmentalization of cellular processes, and comparing prokaryotic and eukaryotic cell structures.
Collisions™: Reconceptualizing Chemistry Through Gameplay

**Content** – Chemistry  
**Grade** – High School  
**Code** – E/PD3005  
**Room** – Ballroom Level Room 303C  
**Time** – 8:30:00 AM – 9:30:00 AM  

**Presenter(s)** – Edward Wang, PlayMada Games  
Lindsay Playchak, PlayMada Games

**Description** – Experience a new digital game designed to teach fundamental chemistry ideas in a fun, exploratory, and engaging way. See how gameplay gives high school students deepened, enduring understandings of key concepts in the system of chemistry. Hear how chemistry teachers are using the game in their classrooms. Bring your own tablet or laptop to play Collisions™.

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**Process Skills and Promotions**

**Content** – Life Science  
**Grade** – Middle School (6 - 8)  
**Code** – WKS3008  
**Room** – Ballroom Level Room 304A  
**Time** – 8:30:00 AM – 9:30:00 AM  

**Presenter(s)** – Jamie Ricketts, Cypress Fairbanks ISD  
Kimberly Robia,  

**Description** – Participants will be introduced to PBAs (Performance Based Assessments – assessment tool that integrates a process skill within the unit content) and how to prepare students with the skills and content necessary to be successful. The session will first address the preparation and PBA in which students analyze data to determine patterns of inheritance using a pedigree chart. This will be followed by a second PBA evaluating the effects of select prescription drugs on different human body systems. Participants will briefly discuss the process of building and sequencing a PBA which includes establishing learning goals and rubrics. Teachers will leave with ready to use teacher and student editions of PBAs aligned with STAAR.

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**The Stoichiometry Sequence - First Semester**

**Content** – Chemistry  
**Grade** – High School  
**Code** – WKS3009  
**Room** – Ballroom Level Room 304B

WS = WORKSHOP  
FS = FEATURED SESSION  
E/PD = EXHIBITOR/PRODUCT DEMO
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Jennifer Thornton, Dubiski Career High School

Description – Stoichiometry is one of the more difficult Chemistry concepts to understand, and yet one of the most important. It involves multiple complex steps and abstract concepts. Time constraints make it challenging to give students the practice time needed to master each step before adding the next. Teachers don't always have the resources - be it time, expensive equipment, or specialized supplies – to bring these abstract concepts to life. This workshop shares a complete set of learning resources designed to scaffold in Stoichiometry base skills starting from the first unit in the year. Dynamic, inquiry-based activities/manipulatives/labs are designed to use cheap, easily available materials only. Participants leave with complete instructions and curriculum (100% teacher created and shared freely.)

Catapulting: From Projectiles to Energy

Content – Physics
Grade – Middle School (6 - 8), High School
Code – WKS3010
Room – Ballroom Level Room 304C
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Lonique Coots, Dallas ISD

Description – Check out this fun, exciting, and engaging lab that will help physics students review two dimensional projectile motion during their energy unit! In this session, participants will build a catapult to analyze the accelerated motion of a horizontally launched marshmallow projectile in two dimensions. Participants will then further explore how to take the calculated information from their catapult launch to determine the total mechanical energy of their horizontally launched projectile. This lab is a great way to blend TEKS SEs P.4C and P.6C. Strategies to differentiate this lab activity for all learners including LEP, SPED, and gifted students will also be addressed.

The Science of Alzheimer's Disease

Content – Biology
Grade – High School, College
Code – WKS3011
Room – Ballroom Level Room 305
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Keri Shingleton, Holland Hall, Tulsa, Ok
Sherry Annee, Brebeuf Jesuit Preparatory School
Description – Among the top 9 causes of death in the United States, Alzheimer’s is the only one for which there is no disease-modifying medical treatment. HHMI’s BioInteractive’s recent classroom resource titled “Alzheimer’s Disease: Piecing Together the Evidence” encourages students analyze and interpret evidence from key studies on Alzheimer’s disease in order to formulate their own hypotheses about the mechanism of the disease and a possible target for a treatment. The paths of student investigation include: brain anatomy, cell pathology, and genetics. During this workshop, teachers will be introduced to this free online resource. Participants will be given time during the workshop to reflect on this resource and how they may incorporate it into their own lesson plans.

ISEA Presents: From Sound Sandwiches to Critical Loads - Where to Find TEKS-Aligned Hands-On Activities

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3012
Room – Hemisfair Ballroom 1
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Gina Higby, The University of Texas at Austin
               Tricia Berry, The University of Texas at Austin

Description – Test your skills at designing the loudest sound sandwich and the most supportive structure. From Curious George to Cyberchase to Design Squad, explore free online science, technology, engineering and math (STEM) resources, hands-on activities, and videos to enhance teaching and learning experiences for your students in formal or informal classrooms and settings. You'll learn about PBS offerings including nearly 4,000 STEM resources for grades K-12 and resources from Discover Engineering, Engineer Your Life, How to Smile and more. You'll experience three STEM activities and will learn about initiatives such as the Texas Girls Collaborative Project that connect and support K-12 STEM outreach educators and supporters across Texas and beyond.

#Paperslide Videos

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3013
Room – Hemisfair Ballroom 2
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Matthew Cushing, Rice University - Office of STEM Engagement
               Dr. Michael Mary, Rice University - Office of STEM Engagement

WS = WORKSHOP     FS = FEATURED SESSION     E/PD = EXHIBITOR/PRODUCT DEMO
Description – Have you ever created a paperslide video? This quick, easy, interactive product is a great way to present information to/from your students and get them engaged in learning. If you have a cellphone or tablet and a little creativity you can make media through this easy to use process. Create products that can be used in flipped classrooms or to demonstrate understanding of concepts. Participants will get hands-on experience in creating short paperslide videos during this interactive session.

What Do You Mean There's NO Scientific Method!

Content – Other
Grade – All
Code – WKS3014
Room – Hemisfair Ballroom 3
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Sandra West, Texas State University
Rowan Amour, Texas State University

Description – Despite decades of national standards from the Science for All Americans (1990) to the latest Next Generation Science Standards (2013) and the current state standards, TEKS (2009), there continues to be a deep lack of understanding by science teachers and vendors of how scientists learn about patterns in the natural world. This session will enable K-12 science teachers to clearly understand the range of types of scientific investigations in the TEKS. Teachers will also understand how the science process TEKS should be taught in support of understanding the concepts rather than teaching the processes separately or matching each process with each concept which results in teachers thinking there are too many TEKS to teach in 155 days of instruction.

Using Claim-Evidence-Reasoning in Elementary Science (3rd-5th)

Content – Instructional Strategies / Pedagogy
Grade – Elementary (3 - 5)
Code – WKS3015
Room – Meeting Room Level Room 205
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Taylor Keller, Comal ISD
Melonie Steele, Comal ISD

Description – Come join us as we explore how using Claim-Evidence-Reasoning for open-ended responses in science can dual-code any lesson to increase students ability to analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred)
evidence. We will share student samples from class. Additionally, we will show you how easy it is to adapt STAAR released questions into CER responses!

Using Formative Assessment to Evaluate Student Thinking

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Presenter(s) – Tracey Ramirez, Charles A. Dana

Description – With an ever-increasing push for high-stakes assessment, teachers need help understanding and using research-based strategies for formatively assessing their students’ understanding of science concepts. What is formative assessment? How does it differ from summative assessment? What should teachers look for when selecting formative assessment activities? What kind of data should teachers collect, and what should they do with the data? These questions will guide the work of this session, giving teachers will opportunities to experience formative assessment activities that align to a select set of elementary TEKS.

Using Mentor Texts in Science

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Presenter(s) – Leo Contreras, Southwest ISD
Jennifer Elwood, Southwest ISD

Description – Science and English language arts don’t have to be taught in isolation. Using mentor texts is an easy way to integrate these two contents. Participants will see sample SCIENCE lessons that can be taught using our favorite mentor texts with ELAR concepts embedded throughout. Lessons excerpts will be shared for each grade from kindergarten through fifth grades. Book lists will also be shared for you to take back and begin building your personal library.
Fleshing Out the Owl Pellet: Comparing and Contrasting Structure and Function in Humans, Shrews and Moles Using Anatomy and Physiology

Content – Life Science
Grade – Elementary (3 - 5)
Code – WKS3019
Room – Meeting Room Level Room 210B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Puneet Gill, Texas A&M International University

Description – The workshop is designed to help participants infer what organs surround bones of the different species. The owl pellet bones will be pasted to a picture of the skeleton of a rat, mole or shrew. Next, participants will infer what relevant organs are located in relation to the bone structure. The participants will be asked to paste or draw in the various digestive and reproductive organs into the picture. Lastly, the participants will be asked to infer how their bone structure and life processes are related to their survival in their environment.

Bridge to Biology Course

Content – Biology
Grade – Middle School (6 - 8)
Code – WKS3020
Room – Meeting Room Level Room 211
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Carol Bullock, Dickinson ISD

Description – I am supposed to teach Biology to 8th graders? Bridge to Biology is the key to keeping 8th grade students engaged and learning once STAAR is over. A 10-15 day course that introduces biomolecules to 8th grade science students thru hands on, engaging activities, labs, and manipulatives. The course also includes a review of prokaryotic and eukaryotic cells as well as cell structure and function. A variety of instructional strategies are built into this course for differentiation and Language learners.

How to Engage Your Flipping Students

Content – Other
Grade – All
Code – WKS3021
Room – Meeting Room Level Room 212A
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Yasmin Wingo, Blooming in Science

Description – I’ve flipped my class…now what? We will discuss Marzano’s high yield strategies (getting the most bang for your buck), formative assessment strategies (to make sure you’re on target), station implementation (breaking the products down), how to create and incorporate games into your class. If collaboration, movement, and quality work is what you desire for your class, you don’t want to miss this session. Please bring your lowest TEK and resources surrounding it such as reading passages, unit vocabulary and questions, in order to make and take a lesson jam packed with quality content. Come ready to share and steal wonderful ideas. (ALSO BENEFICIAL IF YOU HAVE NOT FLIPPED)

Earth and Moon - Cycles and Patterns

Content – Earth/Space Science
Grade – Elementary (3 - 5)
Code – WKS3022
Room – Meeting Room Level Room 212B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Debra Finney, Carroll Peak Elementary, Ft Worth ISD

Description – Covering TEKS 4.8C and 5.8C, This workshop will show hands-on ways to help students understand the patterns and cycles of the Earth and Moon. Using both kinetics and visual methods, participants will: 1. Learn how to see the moon phase pattern, by taking the students outside, and using their using their hand. 2. Build a simple Moon Phase slider and Moon Phases calculator. 3. Make a movable tides simulator for their student’s science journal. 4. Understand shadows and apparent movement of the Sun across the sky. (If you would like a copy of the animation, please bring a flash drive.) All items can be found on Teachers Pay Teachers and will be provided free.

Worlds Beyond Our Solar System with McDonald Observatory

Content – Earth/Space Science
Grade – Middle School (6 - 8), High School
Code – WKS3023
Room – Meeting Room Level Room 214A
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Keely Finkelstein, UT Austin / McDonald Observatory
Marc Wetzel, UT Austin / McDonald Observatory
Description – Astronomers at McDonald Observatory are conducting NASA and NSF supported research on the studies and confirmation of exoplanets. Exoplanets provide an opportunity to examine many attributes of planetary science, including implications for how our own solar system formed. In this workshop, we will conduct hands-on activities to demonstrate how exoplanets are discovered, and modeling the formation of solar systems from gas and dust. These activities fit well into the Earth and Space Science standards. Suggestion of resources from McDonald Observatory and NASA will be offered. Door prizes will be provided. This workshop is based on a series of Teacher Professional Development workshops offered at McDonald Observatory with the support of NASA and the National Science Foundation in summer 2016.

**Bring the Science of Energy to your Elementary Classroom**

Content – Physical Science
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3024
Room – Meeting Room Level Room 214B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Cassie Chesson, National Energy Education Development Project

Description – Confidently teach energy forms and transformations to your elementary school students! Work through 6 hands-on stations to understand motion, sound, thermal, radiant, electrical, and chemical energy as well as the transformations between them. Energy is the underlying comprehensive currency that governs everything humans do within the natural environment. Understanding basic energy concepts is essential for a growing population faced with finite resources and serious environmental issues. It doesn’t have to be over their heads, though! Come find out how to bring these topics to your K-5 classroom.

**How Does That Work?: The Science Behind a Blinking Sneaker**

Content – Physical Science
Grade – Elementary (3 - 5) and Middle School (6 - 8)
Code – WKS3026
Room – Meeting Room Level Room 215
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Lionnel Ronduen, University of Houston
                Jennifer Donze, University of Houston

Description – This lesson connects science content with technological application using readily available materials in a student-centered format. The lesson may be used to elicit students’ understanding of the science of an electrical circuit and its technological application to the design and function of a flashlight.
A simple circuit is a continuous pathway for the movement of electrical energy consisting of an energy source, a device, and conducting connectors. A flashlight is a technological application of circuit science knowledge into a useful device that serves human wants and needs. This lesson will ask students to (1) inquire about blinking sneakers, (2) design, make, test, represent, and analyze and critique several circuit systems with given materials, (3) verbalize and conceptualize the circuit idea.

**ISEA Presents: Habitats for Learning**

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5), Middle School (6 - 8)  
Code – WKS3027  
Room – Meeting Room Level Room 216A  
Time – 8:30:00 AM – 9:30:00 AM  
Presenter(s) – Sheila Brown, Environmental Institute of Houston/UHCL  
Wendy Reistle, Environmental Institute of Houston/UHCL  

Description – Habitats for Learning! Generations of children are being raised with limited exposure to the outdoors and are not afforded the opportunity to learn about the natural environment. Receive the free EIH School Habitat Guidebook and hike through the guide to learn about the research, safety and resources to help you! All the lesson plans are aligned to the TEKS for K-8th grade levels. School habitats are incredibly important and increasingly popular to engage students in learning. Outdoor classrooms help to peak the interest of students in the world around them and the importance of wildlife and natural resource conservation. Come join the fun and learn new ways to take your class outside to discovery the joys of learning outside!

**Making Science Interactive Notebooks Work for You and Your Students**

Content – Other  
Grade – All  
Code – E/PD3028  
Room – Meeting Room Level Room 217A  
Time – 8:30:00 AM – 9:30:00 AM  
Presenter(s) – Erica Colon, Nitty Gritty Science  

Description – Starting and maintaining Science Interactive Notebooks throughout the year can be quite a task if you’re not equipped with the tools and resources to help save you time and save your sanity. Join Erica Colón of Nitty Gritty Science as she shares her resources and time-saving tips to help you and your students get the full advantage of this amazing learning tool.
STAAR Review Bootcamp

Content – Other
Grade – Elementary (3 - 5) and Middle School (6 - 8)
Code – WKS3029
Room – Meeting Room Level Room 217B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Amy Spurlock, Carroll Independent School District
Ashley Lambert, Carroll Independent School District

Description – It's the end of the year. The kids are worn out from studying, homework, and after school activities. The last thing they (and you!) want to think about is yet another state test. So how do we overcome the "testing blues" you might ask? STAAR BOOT CAMP, that's how! Come see how we run our annual high-energy, high-intensity ENGAGING test review program that helps build our students' confidence and gets them EXCITED to show the state what they know. Sound interesting? Game on.

Making Science Words REAL! - How to Build Vocabulary FAST & Make It Stick!

Content – Instructional Strategies / Pedagogy
Grade – Elementary (3 - 5) and Middle School (6 - 8)
Code – E/PD3031
Room – Meeting Room Level Room 217D
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Joanne Billingsley, Billingsley Education LLC - Vocabulary Magic

Description – Do your students struggle learning and remembering the volume of science words they need to master each year? Join us and experience Vocabulary Magic, a simple six step process that builds academic vocabulary fast. Explore a right-brained approach to vocabulary instruction that is student-centered, interactive and fun. We will model strategies that teach students to think visually about science terms, as they describe pictures, discuss new words and develop meaningful definitions. Discover how card sorts and movie trailers can tap into the power of imagery, communication, collaboration and games to make Science Words REAL! Your presenter, Joanne Billingsley, is a nationally - acclaimed speaker and author of Making Words Real (Routledge 2016). Do not miss this informative & inspirational session!

From Cabbages to Pocket Mice: The Power of Selection

Content – Biology
Grade – All
Code – WKS3033
Room – Meeting Room Level Room 221A
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Mary Urquhart, The University Of Texas at Dallas

Description – In this discussion-rich, TEKS-focused, workshop see how powerful small genetic changes can be! Join UT Dallas scientists/science educators as we explore the power of both artificial and natural selection to change species. Explore how small genetic changes in a single species have produced a wide variety of different edible plants. Connect the easy-to-rear cabbage white butterfly to identification of closely-related garden food plants. Extend learning with free online resources from sources including HHMI’s Biointeractive. See how changing a handful of genes turned an unassuming wild grain in Mexico into corn. Watch natural selection in action, selecting different genes producing the same visible trait. Question experts and discuss with peers on how to bring examples of selection into your own classroom.

Establishing Standards of Quality Science Instruction

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3034
Room – Meeting Room Level Room 221B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Joe Ferrara, University of Texas at Dallas
Dr. Stan Hill, Wake Forest School of Medicine

Description – Join us as we examine the misalignment between content standards and the learning experiences teachers are providing for students to master those standards. In this session, participants will explore an approach to standardizing inquiry-based instruction that will provide teachers strategies to develop authentic, standards-based learning experiences. Participants will also receive samples of Problem- and Project-Based learning resources developed through a partnership between Wake Forest School of Medicine and the University of Texas at Dallas.

STEAMy Forensic Science – Making Standardized Science Learning Outcomes More Engaging and Interdisciplinary

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 - 8), High School, College
Code – WKS3035
Room – Meeting Room Level Room 221C
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Brian Shmaefsky, Lone Star College - Kingwood
Description – This workshop uses digital forensic microscopy in a case study approach to reinforce the scientific method and basic content in biology, chemistry, physics, and the Earth sciences. The sample activities presented reinforce previously learned scientific principles rooted in Biology, Chemistry and physics. Plus, it shows ways to incorporate STEAM and STEM education.

**Hot Science – Cool Talks: Immersive Distance Learning Experiences in STEM**

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Presenter(s) – Didey Montoya, Environmental Science Institute, The University of Texas at Austin

Description – Hot Science – Cool Talks (HSCT) is a nationally recognized outreach series presented by the Environmental Science Institute (ESI) at The University of Texas at Austin. Since 1999, HSTC has provided leading researchers from UT Austin and other prominent universities the venue to communicate their research to the public, in particular the K-12 educational community. The talks, ranging from the secret lives of dinosaurs, to 3-D printing, to drones, are designed to be an accessible, educational and fun way to engage the public in STEM topics. Educators will learn how to sign up for live webcasts for future lectures and how to access the archive of past talks. Free CDs with educator resources will be shared with all session attendees.

**Forensic Grave Site Excavation: How to Locate, Map the Site and Process the Evidence**

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Presenter(s) – Anthony (Bud) Bertino, University @ Albany - Graduate School of Education Patricia Nolan Bertino, Scotia-Glenville HS

Description – How are grave sites located, mapped and processed? How is evidence collected, documented and photographed? This workshop outlines how to develop this activity for your students. Hand-outs provided.
Raising the Rigor with Bloom's

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3038
Room – Meeting Room Level Room 225B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Donna Brown, Little Elm ISD

Description – "I don't get it!" We have all heard this before and it doesn't help the student or teacher. Learning to form a proper question is difficult for students. Critical thinking question stems give students a way to increase their questioning ability and think like scientists. The question stems are based on Bloom's Taxonomy so the learning is scaffolded. These stems are also great for having students write questions for one another as formative assessments. By raising the level of questions, you raise the level of learning!

Using Astronaut & Satellite Imagery to Compare Planetary Landforms

Content – Earth/Space Science
Grade – All
Code – WKS3039
Room – Meeting Room Level Room 225C
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Paige Graff, Jacobs @ NASA Johnson Space Center
Suzanne Foxworth, Jacobs @ NASA Johnson Space Center

Description – Participants will work with satellite images of Earth and other planets to learn about and understand geologic processes that have sculpted the surface of Earth and other worlds such as Mars, Pluto, and more. This session will highlight a newly created version of the Blue Marble Matches activity that includes imagery of Pluto from the New Horizons Mission (among other data sets) and is great for the classroom or even informal learning environments. Bring rigor and relevance to your learning environments and have your students be transformed into scientists as they explore.

Plan an Individualized Biology EOC Review

Content – Biology
Grade – Middle (6 - 8), High School
Code – WKS3041
Room – River Level Room 004
Time – 8:30:00 AM – 9:30:00 AM

WS = WORKSHOP     FS = FEATURED SESSION     E/ PD = EXHIBITOR/PRODUCT DEMO
Presenter(s) – Alicia Ortega, Edinburg CISD
Kathy Reeves, Scientific Minds, LLC

Description – Learn how one teacher organized an intense, individualized, Biology EOC review for each of her students that led to 100% passing! In addition, the number of students receiving commended scores increased by 50%. With this process, students are responsible for analyzing and tracking their own benchmark results. Each student tackles the TEKS they have not mastered using a specific self-paced process that is followed by mini assessments to demonstrate mastery. Attendees will be provided with the teacher-created trackers used in this process along with information about online resources used in the self-paced review. This process can be modified for use in grades 5 and 8. Join us for Q & A, idea sharing, and door prizes!

Supporting Excellence in STEM Programs and Teaching Through STEM Certification

Content – Other  
Grade – All  
Code – WKS3042  
Room – River Level Room 006A & B  
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – CJ Thompson, Accelerate Learning-STEMscopes
Whitney Dove, Accelerate Learning-STEMscopes

Description – Do you want to be a STEM Certified Teacher? Come and learn more about the National Institute for STEM Education (NISE) which clearly defines the practices of a successful STEM program and those of the STEM classroom teacher. STEM Teacher Certification recognizes excellence at the classroom, campus, and district levels. Through participation in the NISE certification programs, teachers, campuses and districts will be immersed in an experience that assists them in understanding and aligning their practices to the research defining quality STEM instruction.

TCES Presents: Got STEM?

Content – Other  
Grade – Elementary (3 - 5)  
Code – WKS3045  
Room – River Level Room 006D  
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Pam Carey, San Antonio ISD
Lindy Bulsterbaum, Northside ISD
Description – As elementary teachers, we are asked to DO IT ALL!! Adding to, or changing our current science instruction can seem impossible, however, teaching science in our elementary classrooms through STEM is easier to implement than you may think. Elementary teachers, joins us if you are looking to for a way to facilitate a deeper understanding of how a STEM learning environment produces students that are better problem solvers using the engineering design process.

Building Conceptual Understanding in Elementary Science

Content – General Science
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3046
Room – River Level Room 007A
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Paula Noe, Austin ISD
Kelli Mallory, Edusmart

Description – Many science concepts are complex and abstract, making it a challenge to build deep conceptual understanding rather than superficial knowledge. Misconceptions, coupled with students' struggle with essential vocabulary, remain stumbling blocks in comprehension and application of science in elementary. This session focuses on how to begin with the end in mind in planning engaging and meaningful science lessons that target essential concepts, focus on vocabulary development, and incorporate active learning strategies while leveraging available technology. This session will feature the use of Edusmart Science content as one tool for content presentations, in addition to sharing other great science teaching strategies. Session attendees will receive a certificate of attendance for one hour of continuing education credit. Door Prizes!

Investigate Photosynthesis and Cellular Respiration with Algae Beads

Content – Biology
Grade – High School, College
Code – WKS3047
Room – River Level Room 007B
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Leigh Brown, Bio-Rad Laboratories

Description – Use algae beads in a colorimetric assay to study both photosynthesis and cellular respiration in authentic inquiry investigations (AP Biology Big Idea 2: Labs 5 and 6). Learn how to extend this lab to study the effects of light intensity, light color, temperature and other organisms on these processes. TEKS 112.34.C.1-4 and 7-12
Making Science the Launching Point to Enhance ELA

Content – Other
Grade – Elementary (Pre-K - 2), Elementary (3 - 5), Middle School (6 - 8)
Code – WKS3048
Room – River Level Room 007C
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Carol Carter, Delta Education - Full Option Science Systems
Alfonso Ramirez, Delta Education - Full Option Science Systems

Description – Exciting science investigations should be the starting point of your day to launch your students into ELA and motivate them to read. FOSS integrates reading into hands on science instruction. We will demonstrate how hands on science motivates to students to read and creates better readers.

Topics for Physics and AP Physics: Exploring Rotational Motion with Vernier

Content – Physics
Grade – High School
Code – WKS3043
Room – River Level Room 007D
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Verle Walters, Vernier Software & Technology
Colleen McDaniel, Vernier Software & Technology

Description – Experiments such as “Rotational Dynamics” and “Conservation of Angular Momentum” from our popular Advanced Physics with Vernier–Mechanics lab book will be performed in this hands-on workshop. Conduct these experiments using LabQuest 2 and on computers using Logger Pro software.

Grant Writing: Designing for Dollars

Content – Other
Grade – All
Code – WKS3050
Room – River Level Room 008
Time – 8:30:00 AM – 9:30:00 AM

Presenter(s) – Dr. Rusti Berent, Ward's Science
Kelly Smith, Ward's Science

Description – Expand your STEM ideas and turn them into well designed projects that engage and excite funders. Practice identifying opportunities and matching them with standards aligned science activities. Come with ideas and leave with hands-on tools and sample project proposals to help plan, justify, budget, evaluate, and sustain your project.

TESTA Presents: Share-A-Thon

Content – Earth/Space Science
Grade – All
Code – WKS3106
Room – Ballroom Level Room 301A
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Kathryn Barclay, Fort Bend

Description – The Share-A-Thon is a great way to get lots of different lessons, labs, and activities within the time span of one session! TESTA will have approximately 15 to 20 members present to share with you their favorite lessons and teaching strategies. You will circulate around the room visiting each table at your own pace to find out more about the lessons. All presentations will be conducted continuously during the workshop time. You do not need to be a TESTA member or bring anything to share - we will do that for you. This is your opportunity to come and grab it, get it, take photos, and go!

Energy and Climate Change: Pathways to Sustainability

Content – Earth/Space Science
Grade – Middle School (6 - 8)
Code – WKS3107
Room – Ballroom Level Room 301B
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Marya Fowler, National Wildlife Federation
Jennifer Hammonds, National Wildlife Federation

Description – Join National Wildlife Federation's Eco-Schools USA workshop introducing our new Energy and Climate Change Curriculum: Pathways to Sustainability. Teachers will learn a project-based learning approach that helps engage their students and their school community in practical solutions to climate change. Teachers will take away a 7-step framework that will empower them and their students to make positive long-lasting change on their campus. They will learn to implement STEM methodology in their classroom and through project design and implementation; they will be able to use Kill-a-Watt
Meters to measure electricity; they will be able to conduct an energy audit of their campus, and they will use NASA maps to understand earth's climate systems and how they are influenced by human behavior.

### Start Spreading the News: Scientific Inquiry Through Current Events

**Content** – Instructional Strategies / Pedagogy  
**Grade** – Middle School (6 - 8), High School  
**Code** – WKS3108  
**Room** – Ballroom Level Room 301C  
**Time** – 10:00:00 AM – 11:00:00 AM

**Presenter(s)** – Jessica Hilbert, Crowley ISD

**Description** – Is the focus of your instruction on content or connections? We all struggle with too many TEKS, not enough time, and just forget it if we have students who are behind grade level. How can teachers bridge gaps, teach content, and make science relevant to students? The answer lies in this session where teachers will create authentic science inquiry by using current issues relevant to their students’ lives. Learn to integrate current events and news into your content to increase the connections that students make between science and their world.

### Supporting All Learners (Secondary Level)

**Content** – Instructional Strategies / Pedagogy  
**Grade** – Middle School (6 - 8), High School  
**Code** – WKS3109  
**Room** – Ballroom Level Room 302A  
**Time** – 10:00:00 AM – 11:00:00 AM

**Presenter(s)** – Celeste Nored, Comal ISD  
Holly Long, Comal ISD

**Description** – Supporting All Learners (Secondary) Come join us as we share our strategies to Support All Learners (SpEd, ELL/ESL, 504, Tier 1,2,3 and advanced learners) by modeling lessons and activities using readiness TEKS from secondary science. Participants will learn how to use specific strategies focused on reading- text, data, tables, charts and graphs as well as vocabulary attainment.

### STAAR Wars: May the Fold Be With You!

**Content** – Earth/Space Science  
**Grade** – Middle School (6 - 8)
SATURDAY, NOVEMBER 12, 2016

Code – WKS3110
Room – Ballroom Level Room 302B
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Margaret Baguio, NASA Texas Space Grant Consortium
Joyce Hill, Highland Middle School

Description – STAAR Wars: May the fold be with you. Participants will make foldables that reinforce Earth and Space Science content, learn acronyms to use for reinforcement, and develop sentence starters for use in the classroom. Hands-on techniques and templates for middle school earth and space science topics will be shared. The student knows there are recognizable patterns in the natural world, among objects in the sky, and among the Sun, Earth, and Moon. Great hands-on classroom used and tested materials. Door prizes and giveaways

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DNA is the Flash of Biotechnology

Content – Biology
Grade – High School, College
Code – E/PD3111
Room – Ballroom Level Room 302C
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Ellyn Daugherty, Biotechnology Educator
Oralia Gil, Fisher Science Education

Description – DNA is the flash but proteins are the cash of biotechnology. In this hands-on workshop, participants will learn how to (in 1-2 class periods) confirm a DNA sample that codes for the production of a real biotechnology protein product, bacterial amylase. Bacterial amylase, produced by genetic engineering and cloning, is used in several industries (biofuels, textiles, beverages). Participants will conduct an easy to implement restriction digestion of the pAmylase2014 plasmid using one of The rAmylase Project kits.

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Scientific Discovery Learning with the SpectroClick Kit: A Progressive, Active Learning Approach to Exploring the Interaction of Light and Matter for Primary to Advanced Level Students

Content – Chemistry
Grade – All
Code – E/PD3112
Room – Ballroom Level Room 303A
Time – 10:00:00 AM – 11:00:00 AM
Presenter(s) – Dr. Alexander Scheeline, SpectroClick, Inc.  
Alice Berkson, SpectroClick, Inc.

Description – Spectroscopy, the interaction of light with matter, is one of the principal ways we can understand the material world. By constructing a rudimentary spectrometer with the SpectroClick Kit, students can begin to understand light in a fundamental, quantitative manner. Using colored solutions to illustrate light absorption, students demonstrate how spectrometry can be used for quantitative analysis. Advanced students add mathematical description of diffraction gratings using trigonometry. Finally, free downloadable Windows software processes the students’ digital images for quantitative analysis. The basic components of a spectrometer are out in the open, so discovery and innovation are inherent in instrument and lesson design. The instruction booklet for all levels is available at the workshop and as a free download at spectroclick.com.

Let’s Get Helical: Exploring DNA Structure/Function with Interactive Physical Models

Content – Biology  
Grade – High School, College  
Code – E/PD3113  
Room – Ballroom Level Room 303B  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Dr. Margaret Franzen, Milwaukee School of Engineering  
Gina Vogt, 3d Molecular Designs

Description – DNA can be viewed as either a macromolecule or as a source of genetic information. Participants explore both features with two interactive DNA models and a paper bioinformatics exercise focusing on the beta subunit of hemoglobin. Participants identify the point mutation that leads to sickle cell disease and explore the regulation of expression of fetal and adult hemoglobin. These activities allow students to discover concepts, then learn terminology in an approach that really sticks!

Strategies for Today’s English Language Learners in the Secondary Science Classroom

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8), High School  
Code – WKS3114  
Room – Ballroom Level Room 303C  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Mariana Maldonado, Region 4 Education Service Center

Description – Explore research-based strategies to help English language learners (ELLs) of all levels understand concepts while supporting academic language development. Strategies explored can be
easily implemented in the classroom and yield student engagement opportunities in listening, speaking, reading, and writing about content area concepts.

**Augmented Reality: Body Systems**

Content – Biology  
Grade – High School  
Code – WKS3115  
Room – Ballroom Level Room 304A  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Pamela Groves, University of Texas Rio Grande Valley

Description – Have technology and no time to learn how to implement it? This workshop will guide you through implementing a 5E Biology lesson on body systems that incorporates augmented reality. You will have the opportunity to explore the Anatomy 4D App (compatible with both Apple and Android) to view the human body in multiple dimensions. You will then be introduced to the Aurasma App which can be used to create trigger images that launch videos made by students. Your students will be engaged through the integration of novel technology and will experience learning body systems in an innovative way. Come prepared with the Anatomy 4D App by Daqri and the Aurasma App downloaded or just come to join in the fun!

**The Stoichiometry Sequence - Stoichi Time**

Content – Chemistry  
Grade – High School  
Code – WKS3116  
Room – Ballroom Level Room 304B  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Jennifer Thornton, Dubiski Career High School

Description – Students dread Stoichiometry – overwhelming, complex, and boring. It doesn’t have to be. Make Stoichi engaging and possible! This session picks up where ‘The Stoichiometry Sequence – First Semester’ leaves off, in which foundational skills for mastery are built in through earlier units. (Prior attendance helpful but not required.) This session will focus on teaching the Stoichiometry unit itself with hands-on, inquiry based labs and activities you can create from cheap, easily available materials. We will model key lessons and explore the best pedagogical practices for the topic, including walkthroughs of provided notes, handouts, assignments, assessments, flipped learning videos, etc. Participants leave with digital copies of the complete instructions and curriculum (100% teacher created and shared freely.)
Empowering With iPads

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8), High School  
Code – WKS3117  
Room – Ballroom Level Room 304C  
Time – 10:00:00 AM – 11:00:00 AM  

Presenter(s) – DianaLyn Perkins, Coppell ISD

Description – Empower your students with choice in how understanding is shown and opportunities to share their learning beyond your classroom. Lab reports and investigations can be taken to the next level as learners create presentations to educate a global audience. Learn how to put this technology to use in your classroom. If you are teaching in a 1:1 school, have a class set, or just a few for stations, there are many ways you can utilize this technology to engage your learners giving them more authentic experiences. Leave the workshop with ideas that you can put into practice in your classroom immediately. Example lessons will be shared from middle school science that could also be implemented in High School.

Explore Virtual Labs from HHMI BioInteractive

Content – Biology  
Grade – High School  
Code – WKS3118  
Room – Ballroom Level Room 305  
Time – 10:00:00 AM – 11:00:00 AM  

Presenter(s) – Sherry Annee, Brebeuf Jesuit Preparatory School

Description – Explore free virtual labs and supplemental resources that investigate topics such as ELISA, PCR, DNA sequencing, BLAST, phylogenetic analysis, and data collection. Participants are encouraged to bring a laptop, although it is not mandatory.

Teaching Science with Graphic Novels in Grades 6 - 12

Content – Instructional strategies/Pedagogy  
Grade – Middle School (6-8), High School  
Code – WKS3119  
Room – Hemisfair Ballroom 1  
Time – 10:00:00 AM – 11:00:00 AM
Presenter(s) – Dr. Katie Monnin, University of North Florida

Description – This workshop will identify the most highly qualified science-based graphic novels written for 6 - 12th grade science classrooms. Next, this workshop will discuss how Texas’ curriculum standards align to the identified science-based graphic novels. With the highly qualified 6 - 12th grade science-based graphic novels identified and the Texas curriculum standards in mind participants will then engage in a roundtable workshop activity where they will encounter the identified science-based graphic novels, the applicable standards for teaching each, and a number of lesson plans and strategies for teaching each science-based graphic novel. Finally, participants will leave with a handout that explains the history and rationale for teaching science-based graphic novels in 6 - 12th grade Texas classrooms settings.

The Power of Words in Science

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3120
Room – Hemisfair Ballroom 2
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Matthew Cushing, Rice University - Office of STEM Engagement
Dr. Michael Mary, Rice University - Office of STEM Engagement

Description – Words plays an important role in science education for students and teachers. From the verbs used in the standards to the differences between common usage of words and their scientific definitions, how teachers understand and use these words to inform their practices can determine their success. This session will explain how science leaders can ensure that the language used by their teachers in the development and delivery of science lessons can support their own professional growth as well as student understanding in science.

Safety: Legal Aspects

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3121
Room – Hemisfair Ballroom 3
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Dr. Sandra West, Texas State University

Description – Teachers’ most FAQ about safety in science is about the requirements. In this session you will learn what they are from various agencies including TEA, TEKS, Health Dept., and TEA Facilities requirements. You’ll also see the compelling research on overcrowding that all science teachers and
administrators must be aware. The various national science and science education professional organizations all traditionally have position statements that also provide strong persuasive support to teach and learn science safely. There are too many injured students and teachers due to various reasons that will be detailed. The lack of compliance for required safety training for teachers by districts is indefensible in the courtroom. Find out the factors that link with increased accident rates.

### Science and Literacy: The Dynamic Duo

**Content** – Instructional Strategies / Pedagogy  
**Grade** – Elementary (3 - 5)  
**Code** – WKS3122  
**Room** – Meeting Room Level Room 205  
**Time** – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Ericka Lawton, Rice University

Description – Come learn dynamic literacy strategies that lend themselves specifically to science content instruction within your classroom. This workshop will consist of practical instructional ideas that will help students think critically and converse deeply, while enforcing reading, writing, and vocabulary development within the science classroom. Strategies are specifically helpful to ELL learners.

### Revving Review Activities 2.0 for 8th Grade STAAR

**Content** – Instructional Strategies / Pedagogy  
**Grade** – Middle School (6 - 8)  
**Code** – WKS3123  
**Room** – Meeting Room Level Room 206A  
**Time** – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Marianne Dobrovolny, s3strategies

Description – Join us for this interactive session where participants engage in hands-on activities designed to maximize student achievement on 8th Grade STAAR. These activities feature learner-centered strategies designed to not only review students but to also activate higher-ordered thinking and require them to make applications and connections. Challenge students to take ownership of complex content in life science, the physical sciences, and Earth and space science. Experience AND receive the activities that can be taken back to classrooms and immediately used with students to boost retention of critical content. If you joined us for our packed-out CAST sessions in the past, please know these are all new activities.
Tinkering Through STEM

Content – Other  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3124  
Room – Meeting Room Level Room 207A  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Jessica Salazar, El Paso ISD  
Angela Campana, El Paso ISD

Description – Do you know what Tinkering is? Do you know how to let your students Tinker? Come explore and tinker thru hands on STEM Activities!! We will show you how to incorporate various STEM and Tinkering activities aligned that are aligned to the Science TEKS. We will give you resources and take home STEM Challenge Cards to use in your classrooms!!

Get InFORMed! (with Formative Assessments)

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3125  
Room – Meeting Room Level Room 207B  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Corry Thompson, Lewisville ISD  
Kimberly Estrada, Lewisville ISD

Description – Too often teachers find themselves at a crossroads trying to best identify when students are ready to move on with science content. Elementary teachers will be exposed to a variety of formative assessment tools and strategies (including web 2.0) that support student learning as concepts are developed during a lesson or unit of study. Embedded into the 5E model, our tools will help you to engage your students while still tracking their progress. Get ready to be in the driver’s seat and ride away with content and process standard based activities today! Like students, when we immerse ourselves in the learning, we can make connections and easily transfer it to our classrooms. Come on a road trip with us!

Engaging Strategies For Elementary Students

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3126  
Room – Meeting Room Level Room 210B  

WS = WORKSHOP    FS = FEATURED SESSION    E/PD = EXHIBITOR/PRODUCT DEMO
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Joy Sloan, Offshore Energy Center

Description – Join us and learn how to use different strategies to engage your science student's learning using hands-on activities to explore, explain, evaluate, and expand their science knowledge. We will show how to use puzzles, magnet learning centers, and mobiles as a framework that any science concept can be plugged into. Using these activities will help your students to make the connections of ideas, scientific concepts and vocabulary. The activities are hands-on and can be used in learning centers, as whole group or as a small group lessons.

Texas Energy Education Project (TEEP)-What is Energy? (Free Resource!!)

Content – Earth/Space Science
Grade – Middle School (6 - 8)
Code – WKS3127
Room – Meeting Room Level Room 211
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Dr. Sheryl Roehl, Texas State Aquarium Science Collaborative Project Director
Cynthia Hopkins, Kaffie Middle School/Texas A&M corpus Christi

Description – Energy resources are vital to our way of life, and certain energy resources are particularly important to the future of Texas, for environmental, scientific, and economic reasons. Learn about a new FREE energy resources curriculum for middle school. The session will share the Energy Resources Unit - e.g. What is Energy? What are the Forms of Energy? This presentation acquaints attendees with the science content and activities included, and explains how to find these materials online.

Catch A Wave: The Science of Sound

Content – Physical Science
Grade – Elementary (Pre-K - 2)
Code – WKS3128
Room – Meeting Room Level Room 212A
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Jennifer Lee, Saint Mary's Hall
Bitsy Mayberry, Saint Mary's Hall

Description – Catch a WAVE with us as we PITCH you some new ideas and show you how to TRANSMIT new knowledge to your K-2 learners. Pump up the VOLUME of your SOUND ENERGY lessons with literature and active exploration. Explore several learning centers to discover what the
BUZZ is all about. SOUND like fun? Come away with plenty of easy and inexpensive ideas to ENERGIZE your year.

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**Earth and Moon - Cycles and Patterns**

- **Content**: Earth/Space Science
- **Grade**: Elementary (3 - 5)
- **Code**: WKS3129
- **Room**: Meeting Room Level Room 212B
- **Time**: 10:00:00 AM – 11:00:00 AM

**Presenter(s)** – Debra Finney, Carroll Peak Elementary, Ft Worth ISD

**Description** – Covering TEKS 4.8C and 5.8C, This workshop will show hands-on ways to help students understand the patterns and cycles of the Earth and Moon. Using both kinetics and visual methods, participants will: 1. Learn how to see the moon phase pattern, by taking the students outside, and using their using their hand. 2. Build a simple Moon Phase slider and Moon Phases calculator. 3. Make a movable tides simulator for their student's science journal. 4. Understand shadows and apparent movement of the Sun across the sky. (If you would like a copy of the animation, please bring a flash drive.) All items can be found on Teachers Pay Teachers and will be provided free.

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**Engaging Students with Dynamic Models: Peruvian Food Chain Jenga**

- **Content**: Biology
- **Grade**: All
- **Code**: WKS3130
- **Room**: Meeting Room Level Room 213A
- **Time**: 10:00:00 AM – 11:00:00 AM

**Presenter(s)** – Erin Pearce, Texas Christian University
- Morgan Stewart, Texas Christian University

**Description** – The creation and utilization of models is an essential component of the TEKS. This Jenga © food chain activity demonstrates how models can be used to facilitate students learning in the classroom. After viewing a short video on a Peruvian marine ecosystem, conference attendees will be active participants in the construction of an aquatic food chain. After building the tower, participants will then randomly draw event cards leading to the addition or subtraction of organisms (blocks) into different trophic levels. These events will eventually lead to collapse of the food chain. In addition to utilizing a model, the content presented in this workshop also aligns with TEKS for 5th grade, 7th grade, 8th grade, biology, and aquatic science.
**Bridging Blended Learning to the Science Classroom**

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (3 - 5), Middle School (6 - 8)  
Code – WKS3132  
Room – Meeting Room Level Room 214B  
Time – 10:00:00 AM – 11:00:00 AM  

Presenter(s) – Terry White, Spring Branch ISD  
              Krystal Weiss, SBISD  

Description – Are you ready to blend? This session will give Elementary & Middle school teachers hands-on learning to start using blended learning in your own classroom. Come learn how you can start to blend learning in your classroom!

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**Cooking with Chemistry**

Content – Chemistry  
Grade – Middle School (6 - 8), High School  
Code – WKS3133  
Room – Meeting Room Level Room 214C  
Time – 10:00:00 AM – 11:00:00 AM  

Presenter(s) – Patrick Goertz, St. Dominic Savio Catholic School  

Description – Chemistry teachers face a number of problems: students have trouble connecting chemistry to their lives, there are a lot of TEKS to cover, and it can be hard to find time and materials to complete all the necessary labs. One solution that we came up with: turn general chemistry into a cooking class. The result was higher completion rate of homework and a greater interest in basic chemistry topics. Most of these labs can be done at home with discussion, analysis, and sampling of products done during class time. Learn how to teach gas laws, stoichiometry, molarity, and heat transfer using common ingredients while giving students the confidence to cook by themselves.

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**Recharging Teachers with Electrifying Ideas for Exploring Circuits and Batteries**

Content – Physical Science  
Grade – Elementary (3 - 5) and Middle School (6 - 8)  
Code – WKS3134  
Room – Meeting Room Level Room 216A  
Time – 10:00:00 AM – 11:00:00 AM
Presenter(s) – Dr. Suzanne Nesmith, Baylor University  
Hannah Turney, Baylor University

Description – Many students struggle with recognizing and understanding electrical energy phenomena that exist in their everyday world. Yet this understanding is essential to developing an understanding of energy and a recognition that without energy there would be nothing; no life, no light, no heat, no movement, no you, no me . . . nothing. Come recharge your own interest in electrical energy by participating in hands-on activities sure to spark your elementary and middle level students’ interest and understanding of the electrical energy in everyday life, electron flow, electric circuits, energy transformations, battery voltage, current, and resistance.

Reinforcing Math Skills in Science

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (3 - 5), Middle School (6 - 8)  
Code – WKS3135  
Room – Meeting Room Level Room 217A  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Mark Broughton, Dallas ISD STEM Science Department

Description – Students love to conduct hands-on science investigations. However, too often the fun turns to misery when the time comes to collect, record, represent, and analyze data - in other words - use math in science. During this workshop, educators will explore strategies that help students enjoy learning scientific investigation and reasoning skills along with mathematical knowledge and skills. Besides, with time being such a precious commodity in the classroom, it only makes sense to capitalize on cross-curricular opportunities whenever possible.

Texas Energy Education Project

Content – Earth/Space Science  
Grade – Middle School (6 - 8)  
Code – WKS3136  
Room – Meeting Room Level Room 217B  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Dr. Mary Hobbs, University of Texas

Description – Learn about a new FREE energy resources curriculum for middle school. The first three units address: ● Energy Resources - e.g. What is Energy? What are the Forms of Energy? ● Energy Efficiency - looks more specifically at examples of energy resources currently available and explores their costs and benefits. ● Energy in Your State explores in depth the energy resources that are

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abundant in Texas. This presentation provides an overview of the curriculum development process, acquaints attendees with the science content and activities included, and explains how to find these materials online.

Are You "Layering" Your Curriculum for Personalized Learning?

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 - 8), High School
Code – WKS3137
Room – Meeting Room Level Room 217C
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Laura Clark, Clear Falls High School
Vicki Bradbeer, Clear Falls High School

Description – Have you struggled with differentiating instruction for the many levels in your classroom? Do you wish you could integrate multiple learning styles within a lesson? Then "Layered Curriculum" is for you! Layered Curriculum is a personalized format students follow giving them choice of activities based on their learning style as well as applying their knowledge using critical thinking skills. The complexity of the assignments increase as they move up the layers. This plan gives students ownership in their learning and allows the teacher to work with them individually. Within this training, you will be given lessons that have been developed, tips and tricks to making the curriculum run smoothly, and a working template to begin to design your own lessons.

Supplemental Aids: Powerful Instructional and STAAR© Accommodation Strategies to Support Memory Retrieval

Content – Other
Grade – All
Code – WKS3139
Room – Meeting Room Level Room 221A
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Dr. Kirsten Omelan, Region 4 Education Service Center

Description – Explore barriers to memory retrieval for many students with disabilities. Learn what supplemental aids are and how these strategies assist all learners in recalling information. Understand how supplemental aids can be used during classroom instruction, and why they are important for making content "stick!" Analyze the eligibility requirements for supplemental aid use on the STAAR© assessment. Discover the critical role teachers play in the Individualized Education Program (IEP) process for determining whether supplemental aids are allowable for individual students. For full access
to resources referenced during this session, participants are encouraged to bring an electronic device with wireless capabilities.

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**Flipping into a World of Creativity**

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8)  
Code – WKS3140  
Room – Meeting Room Level Room 221B  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – John Simpson, Charles Paterson MS

Description – Science Learning in Middle School situations is crucial to our students in that it creates their sense of passion and enthusiasm to continue with science in High School and College. Using a Flipped Classroom model students have been able to gain greater insight into science learning and develop collaborative skills that engage them on a regular basis. The focus is upon developing higher levels of Blooms Taxonomy through learning pedagogies that both reform and challenge current thinking. This workshop will show how Grade 7 students have been able to extend themselves using choice and creativity in conjunction with a variety of learning technologies.

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**Help 8th Grade Students Get a Jump Start on the STAAR**

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8)  
Code – WKS3141  
Room – Meeting Room Level Room 221C  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Patricia Lutkenhaus, Northwest ISD-Gene Pike Middle School  
Helen Wright, Northwest ISD-Chisholm Trail Middle School

Description – Many at-risk students struggle in science because they lack the vocabulary or the conceptual knowledge of their peers. Pre-teaching difficult concepts benefits these struggling students by providing background information, additional processing time, small group instruction, and confidence that can translate into academic success. This session will be led by two middle school teachers with over 30 years of experience. They will show participants how to identify which students need interventions, how to track their progress, and share ideas on how to engage students in this type of instruction. Participants will leave the session with at least five hands-on, TEKS-based pre-teaching activities that will enable them jump start their own Jump Start Tutoring.
Constructivism in the Science Classroom

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3142
Room – Meeting Room Level Room 221D
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Dr. Joel Palmer, Education Consultant

Description – This workshop examines the application and importance of Constructivist Theory in students learning of science concepts. This workshop could be correlated to virtually all of the TEKS but it is primarily related to TEKS at each grade level that address how science and scientist know what we know. This might be a good jam session. This session builds on the research behind the videos “The Private Universe” and “Minds of Their Own”. They use constructivism theory as a conceptual framework to explain the problem of student retention of science concepts as a theoretical tool to help teachers transform their classroom instruction to help students develop long-term learning.

Forensic Bone Analysis: What Bones Tell Us

Content – Other
Grade – Middle School (6 - 8), High School, College
Code – WKS3143
Room – Meeting Room Level Room 225A
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Anthony (Bud) Bertino, University @ Albany - Graduate School of Education
Patricia Nolan Bertino, Scotia-Glenville HS


Explore Building Mousetrap Vehicles to Integrate Science, Technology, Engineering, and Mathematics (STEM)

Content – Physics
Grade – Middle School (6 - 8), High School, College
Code – WKS3144
Room – Meeting Room Level Room 225B
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Alden Balmer, McNeil High School - Round Rock Independent School District

Description – Build a mousetrap vehicle and discover how to integrate science, technology, engineering, and mathematics (STEM) by modifying variables to increase speed or distance traveled.

Waters to the Sea: Guadalupe River – PART 1

Content – Life Science
Grade – Middle School (6 - 8)
Code – WKS3145
Room – Meeting Room Level Room 225C
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Cinde Thomas-Jimenez, Guadalupe-Blanco River Authority
Prof. Brinkley Prescott, Center for Global Environmental Education, Hamline University

Description – Waters to the Sea: Guadalupe River, is an online multimedia program packed with information in 12 sections for grades 4-8. In this session we are focusing on four TEKs (one 7th grade and three 8th grade), using 4 sections of the program. Through videos, visualizations, interactive elements and games, we will build understanding of food webs, ecosystems, and environmental changes. Preview the program at: http://waterstothesea.com/guadalupe/

Integrating Learnatronics Hands-On Circuit Activities Into Your Classroom

Content – Physics
Grade – All
Code – E/PD3146
Room – Meeting Room Level Room 225D
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Miles Selvidge, Learnatronics
Dr. Erin Walker, Learnatronics

Description – Want to integrate hands on circuit activities in your classroom but not sure where to start? Come try out the high school (grades 9-12) Introduction to Electronics Kit that embodies STEM to STEAM by taking students from basic lessons on series/parallel circuits to building a Memory Game and Optical Theremin musical instrument. Our new elementary kits targeted at grades 4-6 will also be discussed. Along with hands on activities, we will discuss TEKS standards met, classroom implementation, and instructor resources. Our kits include lesson plans, background materials,
components to build all circuits, and student worksheets to reinforce knowledge of components, theory, and build instructions for each lesson.

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**10 Minutes or Less to Science Success!**

Content – Instructional Strategies / Pedagogy  
Grade – All  
Code – WKS3147  
Room – River Level Room 004  
Time – 10:00:00 AM – 11:00:00 AM  

Presenter(s) – Kathy Reeves, Scientific Minds, LLC, Angie Casteel, Scientific Minds, LLC

Description – Find out how you can supplement your current strategies with an effective, TEKS-focused process of daily review and remediation in grades 6-8 science, Biology, and Chemistry. Science Starters give you a quick and easy-to-use tool for chunking the TEKS that has been used by hundreds of schools to improve student success on state assessments. Support hands-on experiences, accelerate acquisition of academic language, enhance scientific problem solving, and provide scaffolded support for English language learners, students of poverty, and other diverse learners. Attendees receive door prizes and a FREE trial to the web-based Science Starters or Science Sidekicks.

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**Bring Visual Science into K-5 Classrooms—It’s a Game Changer!**

Content – Other  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3148  
Room – River Level Room 005  
Time – 10:00:00 AM – 11:00:00 AM  

Presenter(s) – Carolina Biological Teaching Partners, Carolina Biological Supply Company

Description – Spark student interest and improve outcomes! Engaging science instruction using Tigtag Science real-world STEM videos, interactive content, and a hands-on activity. A blend of compelling online learning tools with hands-on fun is guaranteed to delight you and your students! “Watch out! It might get messy.”

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**STEMscopes 101: Navigating and Trouble-Shooting for MS and HS**

Content – Instructional Strategies / Pedagogy

WS = WORKSHOP    FS = FEATURED SESSION    E/PD = EXHIBITOR/PRODUCT DEMO
Grade – Middle (6 - 8), High School
Code – WKS3149
Room – River Level Room 006A & B
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Andrew Gianakakis, Accelerate Learning-STEMscopes
Jen Pfannsteil, Accelerate Learning-STEMscopes

Description – You are a middle school or high school STEMscopes teacher and love the curriculum, but there are still some things you aren't sure how to use, find, or implement. This session is for you! We will be here to answer ANY questions you have about anything on the STEMscopes site. Need help building assessments? We will show you how. Need help understanding how to assign work or how to use the gradebook to its full potential? We will show you how. Just need a refresher on all things STEMscopes? Come on in and feel refreshed!

New Inquiry Investigations for AP Physics 1 and 2 from Flinn Scientific

Content – Physics
Grade – High School
Code – WKS3151
Room – River Level Room 006C
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Gus Alvarez, Flinn Scientific, Inc.

Description – Join Flinn Scientific as we share experiments correlated to the new AP Physics 1 and 2 curriculum frameworks. Four of our new 31 guided-inquiry investigations will be presented, two aligned with AP Physics 1 learning objectives and science practices and two aligned with AP Physics 2. Prelab preparation and introductory activities have been optimized to help you effectively guide students and provide maximum opportunities for inquiry. Handouts provided for each experiment!

Edusmart Academy

Content – General Science
Grade – All
Code – WKS3152
Room – River Level Room 007A
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Mark Dunk, Edusmart
Description – New and experienced Edusmart users are encouraged to come and learn about all the recent enhancements and additions to Edusmart. Take a tour of the wide variety of resources available, including the recently released STAARSmart Assessments for 5th and 8th grade science and 3rd to 5th grade Math. Edusmart team will be on hand to answer questions and share tips on how you can get the most out of this popular resource. Session attendees will receive a certificate of attendance for one hour of continuing education credit. Door Prizes!

The GMO Debate Rages On!

Content – Biology
Grade – High School, College
Code – WKS3153
Room – River Level Room 007B
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Leigh Brown, Bio-Rad Laboratories
Amber Vincenz, Bio-Rad Laboratories

Description – Are GM crops a good thing? Do all countries have the same GM food labeling requirements? Learn more about GMOs and how to test for the presence of GM content in foods. Join a debate and learn how to bring this experience to your classroom. Aligns with Biology TEKS 1-7, 9, 10 and 12.

How to Incorporate Robotics into any Learning Environment

Authors

Content – Other
Grade – Elementary (Pre-K - 2), Elementary (3 - 5), Middle School (6 - 8)
Code – WKS3154
Room – River Level Room 007C
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Whitney West, School Specialty

Description – Robotics can seem like an intimidating topic to jump into, let alone start teaching! That’s no longer the case with easy-to-build bots and drag-and-drop computer programming apps that make robotics approachable and fun. With the proliferation of STEM careers needing to be filled at growing rate, topics like computer science and robotics are imperative to introduce to our students at an early age. By utilizing new education kits and open-source software coupled with granular hands-on activities, robotics can come to life in front of students eyes and give them a lifelong advantage. Join Dahlton Grover from PCS Edventures, leaders in STEM education, for an eye-opening workshop on how to incorporate robotics into any learning environment!
STEM/Engineering Projects using Vernier Sensors

Content – Other  
Grade – High School  
Code – WKS3150  
Room – River Level Room 007D  
Time – 10:00:00 AM – 11:00:00 AM

Presenter(s) – Verle Walters, Vernier Software & Technology  
Colleen McDaniel, Vernier Software & Technology

Description – Interested in adding real-world, engineering projects to your science classroom? This hands-on workshop explores ways to use Vernier sensors for introductory engineering-design projects. Using our Digital Control Unit, participants will learn how to apply logic statements to set alarms and to control simple electronic devices based on sensor input values.

How Practical is Your Lab

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8)  
Code – WKS3156  
Room – Ballroom Level Room 301B  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Jason Pearson, Fowler Middle School, Frisco ISD  
Tony Westphal, Wester Middle School, Frisco ISD

Description – According to the science TEKS, students conduct laboratory and field investigations at least 40% of our instructional time. This standard is universal from Kindergarten through 12th grade and as science educators we spend countless hours creating content appropriate labs. The problem is that for most labs, due to resources and time, it is necessary to group students together. The question then becomes how to hold every student accountable for both the procedural and content related material. This workshop offers science educators an additional assessment technique that extends past the lab write-up. We will discuss how to use the lab practicum in middle school science curriculum and how to ensure mastery of lab skills and curriculum associated with your labs.

Sun, Earth, Space: The Energy Balance Game

Content – Earth/Space Science
Grade – Middle School (6 - 8), High School  
Code – WKS3157  
Room – Ballroom Level Room 301C  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Dr. Mary Urquhart, The University Of Texas at Dallas

Description – We all know energy travels from the Sun to the Earth, causing the seasons, driving weather and more, but what about energy traveling from the Earth to space? What does invisible infrared radiation have to do with Earth’s energy balance? What kinds of energy transformations and transfer matter to the outside temperature where you live? Have you ever wondered noon isn’t the hottest time of day and longest day isn’t usually the hottest? Come answer these questions, be introduced to thermal inertia, connect to the TEKS, see the light you emit, and more! Leave with your own free hands-on simulation of Earth’s energy balance developed by planetary scientist and science educator Dr. Mary Urquhart of UT Dallas.

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**Zoo Genetics Plus: Making Use of Real World Data**

Content – Biology  
Grade – High School, College  
Code – WKS3158  
Room – Ballroom Level Room 302A  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Jason Crean, Lyons Township High School, Western Springs, IL

Description – Zoo Genetics is an award-winning, free curriculum developed by biology instructor Jason Crean and geneticist Jean Dubach, PhD. These activities look at real world conservation issues and how modern genetics helps to answer questions while simulating actual laboratory methods. Students can complete a dolphin paternity test, assess relatedness between ring-tailed lemur twins, distinguish penguin species, follow a pride of lions and assess the parentage of the cubs, and more without the need of any expensive equipment. This session will introduce these activities to teachers, discuss how they were created, and address how they can be used within current curricula. Essential knowledge and skills that are used by students within this curriculum are also discussed.

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**Using Claim-Evidence-Reasoning in Secondary Science**

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8), High School  
Code – WKS3159  
Room – Ballroom Level Room 302B  
Time – 11:30:00 AM – 12:30:00 PM

WS = WORKSHOP    FS = FEATURED SESSION    E/PD = EXHIBITOR/PRODUCT DEMO
Presenter(s) – Taylor Keller, Comal ISD

Description – Come join us as we explore how using Claim-Evidence-Reasoning for open-ended responses in science can dual-code any lesson to increase students ability to use critical thinking, scientific reasoning, and problem solving. We will share student samples from class. Additionally, we will show you how easy it is to adapt STAAR released questions into CER responses!

Active Learning Strategies to Support Total Class Participation

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 - 8), High School
Code – WKS3160
Room – Ballroom Level Room 302C
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Jeanette Shepherd, Region 4 Education Service Centre
Dodie Resendez, Region 4 Education Service Centre

Description – Are you looking for ways to actively engage all of your students in class discussions and activities? Students are more likely to succeed when they are engaged in learning. However, achieving 100% student participation is a challenge in every classroom. Learn easy-to-implement strategies that increase total class participation, support higher-order thinking skills and promote active learning.

Individual Differences: Kicking Students Out of the Box and Keeping Them There!

Content – Other
Grade – Middle School (6 - 8)
Code – WKS3162
Room – Ballroom Level Room 303B
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Nancy K. Brown, Everman ISD
Teresa Carpenter, Everman ISD

Description – Do you think outside the box? Would you like your students to think outside the box? We have created a method of teaching that encourages our students to take educational risks, use their own creativity and interests to further their academic achievement in Science. These activities can be utilized in all grade levels of middle school. While geared toward Honors/GT, these lessons will ensure maximum engagement, deep learning, and higher achievement on objective analysis without diluting content. Participants will be ready to start when they return to school on Monday. Student work will be displayed. This session will include handouts, a google share document with instruction, and door prizes.
Science + Engineering. We Work Great Together!

Content – Physical Science  
Grade – Middle School (6 - 8)  
Code – WKS3163  
Room – Ballroom Level Room 303C  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Karen Pennywell, Cardiff Junior High, Katy ISD

Description – Come discover exciting new ways to implement engineering design into your middle school classroom. Come experience activities that can inspire your students to design and build while connecting to the TEKS.

ACT2 Presents: A Closer Look at CLOSE Reading

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8), High School  
Code – WKS3164  
Room – Ballroom Level Room 304A  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Arshunda Washington, Alief ISD  
Carmelita Deransburg, Alief ISD

Description – Do your students understand what they are reading? Do they read to understand or read to memorize? Do students parrot the words from the text without thought of what they might mean? Are your class discussions related to the readings more teacher-led or student-led? If the answer is the former, this session is for you! In this session, you will learn how to implement CLOSE reading in your classroom in order to help students read for understanding and energize your classroom discussions.

Integrating MS Math & Science using the Engineering Design Process

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8)  
Code – WKS3165  
Room – Ballroom Level Room 304B  
Time – 11:30:00 AM – 12:30:00 PM

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E/PD = EXHIBITOR/PRODUCT DEMO
Presenter(s) – Lindsey Mondon, STEAM Middle School/Burleson ISD
Taryn Goulding, STEAM Middle School/Burleson ISD

Description – Join us to see how our STEAM MS science team has integrated math and science TEKS using the Engineering Design Process. Our team will walk through the PLC and planning process we use to design integrated lessons that will help students learn through solving problems that require exploration of overlapping math and science learning targets. The presentation will pertain to 8.6C: investigate and describe applications of Newton’s law of inertia, law of force and acceleration, and law of action-reaction, such as in vehicle restraints, sports activities, amusement park rides, Earth’s tectonic activities, and rocket launches, and the corresponding 6 (6.8C&E) and 7 (7.7C) vertically aligned TEKS.

O! Say Can You Biology?

Content – Biology
Grade – Middle School (6 - 8), High School
Code – WKS3166
Room – Ballroom Level Room 304C
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Shanya Kennison, Longview ISD

Description – By the dawn’s early light school doors open and students arrive with a mind created for learning whether or not their attitude agrees. A goal we so proudly hail is to engage students effectively and peak their scientific process thinking. This session will wave a flag of differentiation bursting with various instructional strategies in Biology. Participants will be provided with resources in order to incorporate the 5E model with technological integrations, hands-on activities, kinesthetic/rhythmic activities, student-centered learning, and student motivated relevant, real world applications.

The Cell Cycle and Cancer

Content – Biology
Grade – High School
Code – WKS3167
Room – Ballroom Level Room 305
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Sherry Annee, Brebeuf Jesuit Preparatory School

Description – Explore free HHMI BioInteractive resources that include an interactive cell cycle tool and two hands-on activities about mutations in genes that cause cancer.
Differentiation: Who Has The Time???

Content – Other  
Grade – Middle School (6 - 8), High School  
Code – WKS3168  
Room – Hemisfair Ballroom 1  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Bryan Beck, Liberty High School - Frisco ISD

Description – Differentiation is a scary word for some teachers. Our administrators tell us to try it, our students seem to want it, and we are left trying to figure it out. Let me help you help our students! We will look at differentiation through four lenses: differentiation of content, process, product, and learning environment. If we can add in a little student choice, we can have differentiation. We will discuss the benefits of a differentiated classroom and how this can encourage and empower students and drive inquiry. Come see how the great things you already do in your classroom can be utilized to work better in the future!

Cook to Chef II: Critical Thinking with Models

Content – Instructional Strategies / Pedagogy  
Grade – All  
Code – WKS3169  
Room – Hemisfair Ballroom 2  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Lora Holt, Anthony ISD

Description – This is the next step in becoming a "Chef" in the classroom. In this session you will learn about how to get your students to critique scientific thought in the classroom using models. Learn easy do-able ways to do project based learning through the bundling of standards and the creation of Project Checklist Rubrics. Its all about critical thinking.

Safety: Elementary Science

Content – Other  
Grade – All  
Code – WKS3170  
Room – Hemisfair Ballroom 3  
Time – 11:30:00 AM – 12:30:00 PM
Presenter(s) – Dr. Sandra West, Texas State University

Description – Serious accidents that have injured both students and teachers have occurred with elementary science activities. This session will focus on what the TEKS require for hands-on learning by students and how students can learn not only how to do science safely, but also enable students to carry that safety practical knowledge into their everyday lives. Knowing the factors most linked with accidents in elementary science activities will enable science teachers to broaden the students’ active science learning experiences which results in greater student learning and performance. Recommendations from our national science education professions’ position statements provide explicit guidance to enable teachers to identify unsafe, as well as inaccurate science, activities that are frequently seen online.

All Systems Go! Using a Systems Approach in Elementary Science

Content – Instructional Strategies / Pedagogy
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3171
Room – Meeting Room Level Room 206A
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Tracey Ramirez, Charles A. Dana Center, The University of Texas at Austin

Description – There are 7 Crosscutting Concepts identified and described in the Framework for K-12 Science Education. These crosscutting concepts, called recurring themes in the TEKS, are important in science because they can help students connect knowledge from the various disciplines of science into a coherent and scientifically based view of the world. When science instruction is based on these concepts, students gain a coherent understanding of scientific ideas. In this session, participants will engage in hands-on investigations focused on the crosscutting concept of Systems. Using a systems approach will provide participants with an opportunity to experience how crosscutting concepts deepen students’ understanding of science concepts while providing a way to connect to prior, current, and future learning in science.

Our STEM Story: Camacho Elementary

Content – Instructional Strategies / Pedagogy
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3172
Room – Meeting Room Level Room 207A
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Jennifer Meyer, Leander ISD
Julia Mccomas, Leander ISD
Description – Join us as we share our story about the development of Leander ISD’s first STEM elementary campus! The Leander ISD Science Curriculum Team and members from the Camacho Elementary faculty will share how they have worked collaboratively to create a STEM campus that meets the needs of all students. See how the power of PLC’s, STEM, and PBL have impacted student learning and are making difference.

“What’s the Big Idea? A Glimpse into Current Themes for Elementary Science Educators”

Content – Instructional Strategies / Pedagogy
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3174
Room – Meeting Room Level Room 210B
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Dr. Marianne Phillips, Texas A&M University-San Antonio
Dr. Julie Vowell, Texas Weslyan

Description – “What’s the Big Idea? A Glimpse into Current Themes for Elementary Science Educators” emphasizes current pedagogical themes that are important for elementary science instruction. Topics for discourse include: (1) Integration (2) Differentiating for Young Learners (3) Creating a Balanced Classroom: Person-Centered Instruction (Freiberg, 2002) (4) Inquiry-Based Instruction (5) Maximizing the “Aha” Moment of Learning (6) Cognitive Benefits from Classroom Discourse (7) Including Purposeful Content (8) Integrating Technology (9) Engaging Young Learners (10) Working Cooperatively in the Science Classroom (11) Authentic Science and (12) Understanding the Methods of Science. Participants will apply their knowledge and understanding by creating and sharing collages demonstrating what the current themes might look like in the classroom.

Texas Energy Education Project (TEEP) - Energy in Your State (FREE Resource!!)

Content – Earth/Space Science
Grade – Middle School (6 - 8)
Code – WKS3175
Room – Meeting Room Level Room 211
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Dr. Carolyn Schroeder, Texas A&M University, College of Science
Kim Webb, Conroe ISD

Description – Energy resources are vital to our way of life, and certain energy resources are particularly important to the future of Texas for environmental, scientific, and economic reasons. Learn about a new FREE energy resources curriculum for middle school. The session will share the Energy in Your State...
Unit - e.g. What energy resources are abundant in Texas? Where are these located? How do we harness them? This presentation acquaints attendees with the science content and activities included, and explains how to find these materials online.

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**Real-World Strategies for Middle School ELL Classrooms**

Content – Instructional Strategies / Pedagogy  
Grade – Middle School (6 - 8)  
Code – WKS3176  
Room – Meeting Room Level Room 212A  
Time – 11:30:00 AM – 12:30:00 PM  

Presenter(s) – Kristen Stevenson, Bastrop ISD  
Rebecca Flores, Bastrop ISD  

Description – Do you have ELL's in your science classroom? Are you frustrated with the lack of resources? This interactive session will focus on real-world strategies for your middle school ELL classroom. Participants will be guided through an actual science lesson that addresses the needs of the ELL as well as the needs of other students in the classroom. Real-world, low or no cost strategies and resources will be shared as well as authentic examples and student work. Participants will also learn about Sheltered Instruction and how to start a Sheltered Instruction cohort. Bastrop ISD has also implemented a Sheltered Instruction inclusion model and participants will have the opportunity to participate in this model. Lesson ideas, door prizes and other takeaways.

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**Because it's Texas!: Oil & Gas Activities for Intermediate & Secondary Students**

Content – Physical Science  
Grade – Middle School (6 - 8), High School  
Code – WKS3180  
Room – Meeting Room Level Room 214B  
Time – 11:30:00 AM – 12:30:00 PM  

Presenter(s) – Cassie Chesson, National Energy Education Development Project  

Description – What better state to talk about oil & natural gas?? As of January 2015, the 27 petroleum refineries in Texas had a capacity of over 5.1 million barrels of crude oil per day and accounted for 29% of U.S. refining capacity. Texas is also number one in natural gas production at 29%. It's imperative that Texas students have a firm understanding of these resources. In this session, middle & high school teachers will try their hand at 2 fun, interactive games within NEED's free oil & gas curriculum. Natural Gas Chain & Peak Oil will have you up and out of your seat, gaining the confidence to take these fun lessons back to your students!

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ISEA Presents: Excite and Engage Kids in Hands-on STEM

Content – Instructional Strategies / Pedagogy
Grade – Elementary (3 - 5) and Middle School (6 - 8)
Code – WKS3181
Room – Meeting Room Level Room 214C
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Katelyn Wamsted, Girlstart
Tricia Berry, The University of Texas at Austin

Description – From using dough to teach basic circuitry principles, to creating the bounciest ball using everyday materials, participants will experience a variety of activities used to teach basic science, technology, engineering and math (STEM) concepts in a way that engages all learners. Attendees will discover free hands-on resources and best practices in messaging that connect diverse populations to the excitement of STEM. Each educator will leave with resources aligned to state and national standards that contain activities using a creative twist on teaching STEM from Emmy-award winning SciGirls, a PBS Kids television series that features groups of middle school girls engaged in authentic, inquiry-based science and engineering projects around the country.

Encourage Student Engagement and Excitement about Life Science with Living Organisms.

Content – Life Science
Grade – Middle School (6 - 8), High School, College
Code – WKS3182
Room – Meeting Room Level Room 215
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Dr. Vinita Hajeri, The University Of Texas at Dallas

Description – Join us in this fun and interactive workshop to explore how organisms at the forefront of scientific research can be used in your classroom. Fruit flies, flatworms, nematodes, and zebrafish (model organisms) can be easily maintained in a classroom and used to teach multiple topics including cell structure and processes; growth, development, and reproduction of organisms; natural selection and evolution; heredity and genetics. Explore the value of live model organisms through hands-on-activities to develop student scientific inquiry and communications skills, practice the scientific method, ask meaningful questions, and analyze scientific data. Classroom ready resources including vendor information for these organisms, care and feeding requirements, links to free teaching resources/interactives, and alignments to TEKS across grade levels will be provided.
Fun with Physics and Vocabulary

Content – Physical Science  
Grade – Elementary (3 - 5) and Middle School (6 - 8)  
Code – WKS3183  
Room – Meeting Room Level Room 216A  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Dr. Moira Baldwin, University of Houston-Victoria  
Dr. Katina Thomas, University of Houston-Victoria

Description – Teachers in this workshop will explore science vocabulary while building and racing balloon rocket cars. Physics concepts such as kinetic energy, potential energy, velocity, speed, distance, time, weight, mass, and gravity will be addressed. The portions of 5E Instructional method, predictions, claims, evidence, and science reasoning will be modeled. Teachers will experience the above activities and have access to all printed materials used.

In This Picture I See - Use Images, Conversations and Games as a Springboard for Mastering BIOLOGY Vocabulary

Content – Biology  
Grade – Middle School (6 - 8), High School  
Code – WKS3184  
Room – Meeting Room Level Room 217A  
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Maricela Ramirez, Donna Independent School District/Donna High School

Description – Are you looking for FREE, EASY, and FUN ways to integrate technology into your science classes? Bring your own device and learn how to make and use QR codes for a plant identification activity, conduct a search by taking a picture, use Plickers instead of clickers for assessment, create a video repository, and use an online interactive presentation tool.

Complete the Inquiry Cycle: Write Claims and Evidence

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3185  
Room – Meeting Room Level Room 217B  
Time – 11:30:00 AM – 12:30:00 PM
Presenter(s) – Sue Ann DeCuir, Pflugerville ISD

Description – Participants will experience an inquiry process that cements learning and supports critical thinking at all grade levels in Elementary Science. The group will develop a TEKS focused question, and determine how to collect and organize the data that will provide evidence to answer their question. They will discuss and create a class data chart, and work together to produce a claim supported with evidence. This shared writing leads and prepares the group to write their own independent claims, using sentence stems. Participants will receive graphic organizers, sets of sentence stems that support different types of investigation questions, and a Claims, Evidence, and Reasoning rubric. Strategies within this inquiry process that develop academic vocabulary will also be modeled and discussed.

Making Biology Words REAL - Vocabulary Strategies That Work!

Content – Biology
Grade – High School
Code – E/PD3187
Room – Meeting Room Level Room 217D
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Joanne Billingsley, Billingsley Education LLC - Vocabulary Magic

Description – Research and experience tells us that students master content when they talk and share ideas about what they are learning. Join us and discover how to utilize imagery, gesturing, conversation, and games as springboards to teach content and enhance critical reading and writing skills. Discover ways to jumpstart conversations that reduce stress, improve attitudes, and motivate students as they engage in active learning. Explore tips for converting academic text into mini-movies, where pictures, music and words are combined to produce a powerful learning experience. Your presenter, Joanne Billingsley, is a nationally-acclaimed speaker and author of Making Words Real- Proven Strategies for Building Academic Vocabulary Fast (Routledge 2016). You do not want to miss this informative & inspirational session!

Engineering Through the TEKS

Content – Physical Science
Grade – Elementary (3 - 5)
Code – WKS3188
Room – Meeting Room Level Room 218
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Monica Schmidt, Cypress-Fairbanks ISD
Rhoda Goldberg, Cypress-Fairbanks ISD
Description – Come experience the engineering process Hollywood-style with clips from How to Train Your Dragon! Compare and contrast the thinking processes of scientists and engineers. Apply the engineering process by participating in an activity aligned with designing an experiment that tests the effects of forces and motion (TEKS 4.6D and 5.6D). Walk away with ideas you can use in your classroom and a list of resources for finding additional engineering ideas.

Establishing Standards of Quality Science Instruction

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3190
Room – Meeting Room Level Room 221B
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Dr. Joe Ferrara, University of Texas at Dallas
Dr. Stan Hill, Wake Forest School of Medicine

Description – Join us as we examine the misalignment between content standards and the learning experiences teachers are providing for students to master those standards. In this session, participants will explore an approach to standardizing inquiry-based instruction that will provide teachers strategies to develop authentic, standards-based learning experiences. Participants will also receive samples of Problem- and Project-Based learning resources developed through a partnership between Wake Forest School of Medicine and the University of Texas at Dallas.

How to Include Inquiry in Middle School Without Losing Your Mind

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 - 8)
Code – WKS3191
Room – Meeting Room Level Room 221C
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Helen Wright, Northwest ISD-Chisholm Trail Middle School
Patricia Lutkenhaus, Northwest ISD-Gene Pike Middle School

Description – Many teachers assume that the word inquiry means “chaos without purpose,” but that does not have to be the case. There are many forms of inquiry and each has its own purpose. For long lasting knowledge, students must make their own discoveries and connections. Two experienced middle school teachers will show participants how to take what they are already doing in their classroom and transform it into a 5E lesson focusing on when and how to incorporate inquiry. This method of instruction is proven to increase both student engagement and achievement. Participants will leave the session with
the tools needed to create their own 5E lessons and transform almost any “cookbook lab” into a focused inquiry experience.

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**Interactive Graphic Organizers for the Science Classroom**

Content – Instructional Strategies / Pedagogy  
Grade – All  
Code – WKS3193  
Room – Meeting Room Level Room 224  
Time – 11:30:00 AM – 12:30:00 PM  

Presenter(s) – Brian McLean, Fort Worth Independent School District  
Dr. Liz Ward, Texas Wesleyan University

Description – Take an ordinary, non-coated paper plate and create a hands-on, 3-D student generated product that illustrates multiple TEKS such as layer models, (i.e. Sun, Earth or atmosphere) or cycles (i.e. water or life). Second, with just a few creative creases to a blank and bound page in the Science journal, create a five part, hands-on vocabulary graphic organizer that can be utilized by all your student populations. The best part, no glue needed. Your vocabulary graphic organizer is already attached to the journal. These activities are perfect for all grade level teachers. Let’s TEK it, Make it and Take it and let your students soar with the wings of “TEKativity”.

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**Brainstorming and H.O.T. Skills**

Content – Life Science  
Grade – All  
Code – WKS3194  
Room – Meeting Room Level Room 225A  
Time – 11:30:00 AM – 12:30:00 PM  

Presenter(s) – Carol Bullock, Dickinson ISD

Description – Looking for new ways to Brainstorm and use Higher Order Thinking Skills? Attendees will participate in 5 different Brainstorming and Higher Order thinking skills. All 5 strategies are able to be used at 3rd grade and up for all levels of learners. Participants will be able to use them in class on Monday. All 5 strategies can be used for just about any concept in any grade.

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**Waters to the Sea, Guadalupe River Part 2**

Content – Earth/Space Science
Grade – Middle School (6 - 8)
Code – WKS3196
Room – Meeting Room Level Room 225C
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Cinde Thomas-Jimenez, Guadalupe-Blanco River Authority
Prof. Brinkley Prescott, Center for Global Environmental Education, Hamline University

Description – Waters to the Sea: Guadalupe River is a multimedia program available online, packed with information in 12 sections for grades 4-8. In this session we are focusing on one 7th grade TEK, using 3 sections of the program. Through videos, visualizations, interactive elements and games, we will build understanding of groundwater, surface water, watersheds and human impact. You don’t need to have attended Part 1. Preview the program at: http://waterstothesea.com/guadalupe/

You’re the Hero, Need a Sidekick?

Content – Instructional Strategies / Pedagogy
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3198
Room – River Level Room 004
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Angie Casteel, Scientific Minds, LLC
Kathy Reeves, Scientific Minds, LLC

Description – Like Batman and his buddy Robin, even super teachers need a sidekick! Come explore the new elementary Science Sidekicks, web-based learning modules that propel students towards STAAR success. Science Sidekicks activate the 5E learning model with images, audio, activities, and loads of vocabulary practice. The Science Sidekicks are a comprehensive, TEKS-aligned science program that is English/Spanish bilingual. Accounts include assessments, exit tickets, support for ELL, and teacher professional development. With super power ease, teachers control instruction and intervention while students master independent learning. Attendees will explore the affordable Science Sidekicks with a free trial and door prizes.

STEMscopes 101: Navigating and Trouble-Shooting for Elementary School Teachers

Content – Other
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3199
Room – River Level Room 006A & B
Time – 11:30:00 AM – 12:30:00 PM
Presenter(s) – Andrew Gianakakis, Accelerate Learning-STEMscopes
Jan Pfannsteil, Accelerate Learning-STEMscopes

Description – You are an elementary school STEMscopes teacher and love the curriculum, but there are still some things you aren’t sure how to use, find, or implement. This session is for you! We will be here to answer ANY questions you have about anything on the STEMscopes site. Need help building assessments? We will show you how. Need help understanding how to assign work or how to use the gradebook to its full potential? We will show you how. Just need a refresher on all things STEMscopes? Come on in and feel refreshed!

Design and Build Engaging 5E Lessons

Content – General Science
Grade – Elementary (Pre-K - 2), Elementary (3 - 5), Middle School (6 - 8)
Code – WKS3202
Room – River Level Room 007A
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Paula Noe, Austin ISD
Kelli Mallory, Edusmart

Description – Drive student engagement and learning through the delivery of well-designed 5E lessons. You will learn basic principles of designing 5E lessons and building them on Edusmart’s easy to use online platform. Edusmart provides a variety of standards aligned lesson components such as, instruction modules, interactive glossaries, reading passages, virtual labs and assessments that can be comingled with outside resources such as district curriculum, YouTube videos and other open educational resources (OER), resulting in lessons that can meet the needs of diverse learners. Session attendees will receive a certificate of attendance for one hour of continuing education credit. Door Prizes!

Using Science Notebooks to Make Sense of Learning (Grades K-4)

Content – Other
Grade – Elementary (K - 4)
Code – WKS3204
Room – River Level Room 007C
Time – 11:30:00 AM – 12:30:00 PM

Presenter(s) – Carol Carter, Delta Education - Full Option Science Systems
Alfonso Ramirez, Delta Education - Full Option Science Systems
Description – Science notebooks enable students to establish habits of making observations, collecting and organizing data and making sense of it all. FOSS embeds notebooking, strategies in all investigations. Learn how to effectively use science notebooks in your classroom. This workshop will focus on setting up notebooks and strategies for Grades K-4.

From Speed to Force and Beyond

Content – Physical Science  
Grade – Middle School (6 - 8)  
Code – WKS3206  
Room – Ballroom Level Room 301A  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Terri Henry, Benold Middle School

Description – Students struggle to understand the difference between speed, velocity, and acceleration. They have difficulty solving problems for speed, force, and work. This workshop will focus on labs and manipulatives that will aid in student learning of these topics. Teachers will walk away with a variety of ideas and activities that can be implemented in the classroom when you return to school. Great ideas for STAAR Review.

Building a Unit Plan Using American Association of Chemistry Teachers (AACT) Member Benefits and Resources

Content – Chemistry  
Grade – High School  
Code – WKS3207  
Room – Ballroom Level Room 301B  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Kim Duncan, American Chemical Society  
Jenn Fees, American Chemical Society

Description – Building a unit plan for chemistry is a difficult undertaking that include lectures, practice problems, demonstrations, activities, and experiments. The resources available on the American Association of Chemistry Teachers (AACT) website can help you find all the materials you need to create unit plans. Join two former high school chemistry teachers who are now part of the AACT staff as they show you how to put together a successful unit plan using the member benefits, lessons, activities, labs, demonstrations, projects, videos, and animations that are available to AACT members. The workshop includes a virtual tour of the AACT website and will also discuss how teachers can get involved in AACT through publishing articles, writing blogposts, and developing classroom resources.
How Evolution Drives Concepts in Modern Biology

Content – Biology
Grade – High School, College
Code – WKS3208
Room – Ballroom Level Room 301C
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Dr. Joel Goodman, UT Southwestern

Description – Biology teachers often present evolutionary theory to their students as a separate topic that does not relate directly to the rest of biology content. The intention of this workshop is to relate evolution to other topics, especially organelles, to give teachers a richer context in which to describe how organelles conspire to promote cell function. Most of what we know about cell organelles were derived from the study of model cell systems, especially yeast. Discoveries made in model systems assume evolutionary conservation of basic function. Examples from the presenter’s laboratory will be used to show how evolutionary theory drives the discovery process. The session will also reveal exciting new details about an organelle under intensive study, the lipid droplet.

Vocabulary Games and Activities for All

Content – Other
Grade – Middle School (6 - 8), High School
Code – WKS3210
Room – Ballroom Level Room 302B
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Hannah Galbreath, Region 16
Kimberly Irving, Region 16

Description – Struggling with engaging students in the ever increasing vocabulary of science. This session will show you multiple games and hands on activities that you can use in your classroom to not only increase vocabulary knowledge but also promote higher order thinking at the same time for differentiation among students. Teachers will participate in some fun science games and also take away a list of games they can implement right away with no prep at all, along with templates for some hands on learning activities for all types of learners. Several door prizes will also be given away.

Modeling and Investigating Biomolecules

Content – Biology
Grade – High School

WS = WORKSHOP  FS = FEATURED SESSION  E/PD = EXHIBITOR/PRODUCT DEMO
Comparing the structures and functions of biomolecules can be challenging for many students in introductory biology. In this workshop, participants will model various biomolecules and review investigations for chemical identification. They will work through stages of modeling the structures to identify and discuss how to differentiate the instruction to meet student needs.

Integrating Digital Resources to Enhance Student Understanding of the Earth, Weather, and Ocean Systems.

Come see how teachers are embracing teaching in the 21st century by incorporating vetted digital resources that are aligned to the state standards. Participants will be introduced to a variety of digital resources that support the Weather TEKS 8.10A, 8.10B, and 8.10C. We will walk through a model lesson incorporating the SAMR Model (Substitution, Augmentation, Modification, and Redefinition) for technology integration. This demonstration will include how digital resources are integrated into a student-centered lesson to enhance instruction.

Diverse Learners and the 5Es: Strategies for Addressing Common Barriers in Secondary Science Workshop

Come see how teachers are embracing teaching in the 21st century by incorporating vetted digital resources that are aligned to the state standards. Participants will be introduced to a variety of digital resources that support the Weather TEKS 8.10A, 8.10B, and 8.10C. We will walk through a model lesson incorporating the SAMR Model (Substitution, Augmentation, Modification, and Redefinition) for technology integration. This demonstration will include how digital resources are integrated into a student-centered lesson to enhance instruction.
Universal Design for Learning (UDL) is a powerful framework that supports all learners by proactively planning for multiple means of engagement, representation, and action and expression. See how using the UDL framework for 5E lesson planning can help strategically plan flexible lessons for student success in secondary science. Explore learning and behavior strategies that address some of the common barriers students experience during the phases of the 5E lesson model.

**CSI: Mars Alien Encounter**

**Content** – Earth/Space Science  
**Grade** – Middle School (6 - 8)  
**Code** – WKS3214  
**Room** – Ballroom Level Room 303C  
**Time** – 1:00:00 PM – 2:00:00 PM

**Presenter(s)** – Margaret Baguio, NASA Texas Space Grant Consortium  
Joyce Hill, Highland Middle School

In the year 2030, NASA has made great strides in establishing an outpost site on Mars for future human habitation. NASA relies on advances in automation to perform significant robotic activities. A crime has been committed on the Martian surface and we must determine by who before humans arrive. The scenario is set... now you must use your forensic scientific skills and knowledge about Mars to solve the mystery. Engaging, hands-on, problem solving activity. Delve deep into the mysteries of Mars with this ready-to-implement lab. DVD with power point and curriculum is provided.

**Teaching Atomic Theories, Periodic Trends, and Integrating Technology**

**Content** – Chemistry  
**Grade** – High School  
**Code** – WKS3215  
**Room** – Ballroom Level Room 304A  
**Time** – 1:00:00 PM – 2:00:00 PM

**Presenter(s)** – Kylie Murry, Gilmer ISD

Project based learning, cooperative learning, and integration of technology are all involved in this unit that incorporates research and history of chemistry and contribution of scientists, atomic theories, and periodic trends. Students explore conceptually how atomic theories built upon each other, as well as each give a different perspective on the atom. This information is used to scaffold to periodic trends and patterns when they are applied to the periodic table. During the process, technology skills and engagement strategies are utilized to make the learning fun and effective. Rubrics, graphic organizers, and technology links will be made available so that this unit is ready to use in your classroom.
ACT2 Presents: 20 Engaging Chemistry Lessons

Content – Chemistry
Grade – High School
Code – WKS3216
Room – Ballroom Level Room 304B
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Bonnie Smith, Dayton High School

Description – Presentation includes 20 practical lessons that engage students into some of the tough topics in chemistry. Topics include: Frozen matter (lessons using movie clips), electron configuration (group activity), pumpkin fun (Halloween excitement), exploding gummy bears (lab safety and redox), LEGO balancing (build and balance reactions counting atoms), stoichiometry madness (from LEGO’s to card sorts), and an energy scavenger hunt! Each lesson contains objectives written from the TEKS as well as guiding questions for small group analysis and discussion. Students love the hands-on nature of these lessons and you will, too. Handouts are available for each attendee so you can take it back to school and use it immediately.

Critical Writing Strategies in Secondary Science

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 - 8), High School
Code – WKS3217
Room – Ballroom Level Room 304C
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Heather Wolber, Comal ISD

Description – Do you have students who are full of angst when it comes to open ended questions? Are students in constant misery when complete sentences are a must? If these issues are apparent, come join us as we share our Critical Writing strategies to promote meaningful student reflections. Participants will learn how to incorporate writing strategies in fun and engaging ways so that students take joy in their writing.

Exploring a Genetic Trait with Sticklebacks

Content – Biology
Grade – High School
SATURDAY, NOVEMBER 12, 2016

Code – WKS3218
Room – Ballroom Level Room 305
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Sherry Annee, Brebeuf Jesuit Preparatory School
Ashley Bryant, Ector County ISD

Description – Develop a rich and relevant lesson about genetic inheritance by using free resources from HHMI BioInteractive, which include a short film, lab activity, and virtual lab. Emphasis will be placed on collecting and analyzing data to determine type of genetic inheritance. All participants will receive a free set of color printed stickleback cards.

Interactive Word Walls: Enhancing Students’ Ability to Speak, Read, and Write About Science Experiences.

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3220
Room – Hemisfair Ballroom 2
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Dr. Julie Jackson, Texas State University

Description – Speaking, reading and writing skills are essential to science. Reading, interpreting, and producing domain-specific text are fundamental practices of science. Interactive word walls help develop students’ ability to read and produce the genres of texts that are intrinsic to science at every grade level. They resemble graphic organizers, strategically target academic vocabulary, and are student generated. Interactive word walls support the development of scientific thinking, build academic vocabulary, and reinforce important patterns while providing an overview of each lesson and unit. They unify related terms and concepts, and visually display connections between vocabulary, inquiry experiments, and experiences. In this session, we will describe our efforts to use interactive word walls as scaffolds that help students effectively communicate scientific ideas.

Safety: Secondary Science

Content – Other
Grade – All
Code – WKS3221
Room – Hemisfair Ballroom 3
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Dr. Sandra West, Texas State University
Description – As students move from science activities at the elementary level to secondary, more hazardous chemicals and equipment are used. Thus, increasing the likelihood that accidents will increase, but the incidents are not likely to be serious if the teacher and facilities have certain characteristics. Students cannot learn real science by memorizing vocabulary. They must learn about patterns in the natural world in the same way scientists do with different types of investigations, many of which have little to no hazards involved. So, concerns about safety used as an excuse to not allow students to conduct the TEKS required investigations are unfounded and unethical. Moreover, conducting authentic scientific inquiry is what teachers and students find intriguing.

Where Did the Leaves Go? Learning Decomposition Through an Inquiry-Based Project

Content – Biology
Grade – Middle School (6 - 8)
Code – WKS3223
Room – Meeting Room Level Room 206A
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Jennifer Donze, University of Houston
Lionnel Ronduen, University of Houston

Description – Investigation is a really important part of science, in this 5E inquiry-based lesson students will develop their investigation skills by becoming the scientists! They will formulate a hypothesis, design an investigation, collect data, draw conclusions from their data, and communicate their findings to their peers. These skills will be used to discover the concept of decomposition and the soil ecosystem.

STEM for Every Age: Offering K-5 Opportunities

Content – Other
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Code – WKS3225
Room – Meeting Room Level Room 207B
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Nancy Kreth, Northside ISD-Curriculum and Instruction
Amanda Ewenson, Northside ISD-Curriculum and Instruction

Description – Come learn about how our district has expanded opportunities for students K-5 to engage in a variety of STEM programs that expand their creativity and allow them to use their imaginations while learning about the engineering process. Over a period of three years, our district has expanded from 2 after school offerings targeted for 4th and 5th grade students to 7 after school programs offered to K-5 students.
May the FORCE Be With You!

Content – Instructional Strategies / Pedagogy
Grade – All
Code – WKS3226
Room – Meeting Room Level Room 211
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Jason Baughman, Little Elm ISD

Description – A long, long time ago, in a land far, far away...teachers and technology worked together to create effective science classrooms! Far Out Resources for Classroom Effectiveness will show you how the web can make life easier for you and more engaging for students. We'll look at some great YouTube creators that make science real. Learn how to collaborate with experts through Nepris and the Texas Wildlife Association. We'll also explore far out web tools like Chrome Experiments, amazing Google Docs add ons, and NewsELA to customize reading levels of science content. There's a lot more than that, so I hope you enjoy the ride to this far away land!

READY, SET, GO!! Diagnosing My Scores!

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 - 8)
Code – WKS3228
Room – Meeting Room Level Room 214A
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Heidi Gomez, Los Fresnos CISD
Mayra Bernal, Los Fresnos CISD

Description – READY, SET, GO!!! Want to stop spending so much time analyzing your students scores? Let them do it! Join us as we share a tool that will help to quickly identify the areas of concern. This tool is easy to use and implement on your next assessment! While it is geared for middle school science, it is adaptable across grade levels. Yes, we have door prizes!!

Energy Games, Chants, and Plays: Increasing Energy Literacy in Your Elementary Classroom

Content – Physical Science
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)
Teaching Students to Ask Their Own Questions

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5), Middle School (6 - 8)  
Code – WKS3230  
Room – Meeting Room Level Room 214C  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Belinda Kinney, Plano ISD  
Mary Swinton, Plano ISD

Description – Who's leading the learning? You or them? Come learn strategies to create a classroom filled with dialogue and inquiry. These questioning strategies will cultivate curiosity, help students go more in depth in their learning, and extend their understanding of the state standards.

Hot Warm Ups

Content – Earth/Space Science  
Grade – Elementary (3 - 5) and Middle School (6 - 8)  
Code – WKS3231  
Room – Meeting Room Level Room 215  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Meshelle Smith, Bear Branch Elementary

Description – Make those first five minutes count! Use a variety of warm-ups to engage, assess, and connect. Get your students in their seats and working without saying a word! Facilitate academic discussions. Involve every student. Add some quirky fun to make your class the one kids can't wait to get to. Your students will love these innovative activities that are interactive and provoke deeper thinking.
This workshop will move quickly so you can see these warm-ups in action and be able to use them on Monday. The content was created for fifth grade, but the concepts could be easily adapted to other grade levels.

Habitats for Learning

Content – Instructional Strategies / Pedagogy
Grade – Elementary (Pre-K - 2)-Middle School (6-8)
Code – WKS3232
Room – Meeting Room Level Room 216A
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Sheila Brown, Environmental Institute of Houston/UHCL
Wendy Reistle, Environmental Institute of Houston/UHCL

Description – Habitats for Learning! Generations of children are being raised with limited exposure to the outdoors and are not afforded the opportunity to learn about the natural environment. Receive the free EIH School Habitat Guidebook and hike through the guide to learn about the research, safety and resources to help you! All the lesson plans are aligned to the TEKS for K-8th grade levels. School habitats are incredibly important and increasingly popular to engage students in learning. Outdoor classrooms help to peak the interest of students in the world around them and the importance of wildlife and natural resource conservation. Come join the fun and learn new ways to take your class outside to discovery the joys of learning outside!

A Little Bit About a Lot

Content – Instructional Strategies / Pedagogy
Grade – Middle School (6 -8), High School
Code – WKS3233
Room – Meeting Room Level Room 217A
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Maricela Ramirez, Donna Independent School District/Donna High School

Description – Are you looking for FREE, EASY, and FUN ways to integrate technology into your science classes? Bring your own device and learn how to make and use QR codes for a plant identification activity, conduct a search by taking a picture, use Plickers instead of clickers for assessment, create a video repository, and use an online interactive presentation tool.

No Child Left Inside
Content – Life Science  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3235  
Room – Meeting Room Level Room 217C  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Lori Klimek, Ethridge Elementary/ Lewisville ISD  
Tamilynn Jackson, Independence Elementary/ Lewisville ISD

Description – 'No child left indoors!' is our motto. Students enjoy hands-on learning while achieving the TEKS and Learning Standards. Mrs. Klimek and Mrs. Jackson have established Outdoor Learning Centers at their schools which continue to successfully grow each year. The goal is to encourage participants to create an Outdoor Learning Center that works for their campus. They will share a Google classroom they created that allows for continuous collaboration, photos, and lesson ideas to help throughout the year. Having access to this is a crucial step as questions will arise. They want to be available as a continuous resource for teachers and all participants.

A Potpourri of Hands-on, Minds-on Lessons and Activities

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5), Middle School (6 - 8)  
Code – WKS3237  
Room – Meeting Room Level Room 218  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Dr. Michael Kamen, Southwestern University  
Anna Faust, Southwestern University

Description – Undergraduate students (pre-service teachers) in a science methods course at Southwestern University will present their best lesson ideas in a make and take workshop format. All lessons and activities will include a handout written in a 5E lesson plan format and connected to TEKS. A Vygotskian-based instructional model will guide the pedagogy in each lesson. Participants will have an opportunity to participate in all of the activities.

STEMart: Reinforcing Science Through Art

Content – Instructional Strategies / Pedagogy  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3239  
Room – Meeting Room Level Room 221B  
WS = WORKSHOP    FS = FEATURED SESSION    E/PD = EXHIBITOR/PRODUCT DEMO
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Lisa Hansen, Accelerate Learning-STEMscopes

Description – During this hands-on workshop, participants will experience science-supporting art activities designed to inspire and challenge students by engaging their higher order thinking skills. STEMart lessons were developed to encourage students K-5 to solve problems and express themselves creatively while reviewing and reinforcing key science concepts. Both science and art involve creative thinking—discover the benefits of integrating both!

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**Some Like it Hot! Thermochemistry Toolkit**

Content – Chemistry
Grade – Middle School (6 - 8), High School, College
Code – WKS3242
Room – Meeting Room Level Room 223
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Prof. Jessica Rogers, Lubbock Christian University

Description – Lubbock Christian University professor will present hands on labs, demonstrations, manipulatives and foldables on THERMOCHEMISTRY from their high school CHEMteach academy. Participants will walk away from this session with labs and demonstrations that do not require professional disposal, a research experiment design template to teach students to control variables, and how to use pop bead manipulatives to show the connection between balancing equations and heat. Participants will also receive notebooking ideas to meet chemistry TEKS C.11A-E and see examples of how flipped instruction can be used in high school to maximize chemistry class time.

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**A Dynamic Approach to Teaching Trends of the Periodic Table.**

Content – Chemistry
Grade – Middle School (6 - 8), High School, College
Code – WKS3243
Room – Meeting Room Level Room 224
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Dr. Crista Force, Lone Star College - Montgomery
Moira Baldwin, University of Houston-Victoria

Description – This workshop will demonstrate how to create a dynamic life size periodic table for teaching trends. We begin teaching trends of the periodic table in middle school science and continue teaching into college chemistry. The participant will become the student and will create a life size periodic
table through research of individual elements. With this research, participants will make creative pictorial representations of their assigned elements with properties. Each representation will be used to create a life size model of the periodic table. The presenters will guide the participants just like an actual classroom to analyze and develop the trends. Participants will learn how to create a scientific model and use critical thinking skills with an activity based classroom.

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**Vocabulary Strategies for STAAR/EOC Success!**

Content – Instructional Strategies / Pedagogy  
Grade – All  
Code – WKS3248  
Room – River Level Room 004  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Angie Casteel, Scientific Minds, LLC  
Kathy Reeves, Scientific Minds, LLC

Description – Did you know that there are more new words in first year science courses than in first year French? Find out how you can improve science vocabulary with activities and games that get your students thinking, moving, and creating. We'll show you how to easily integrate Scientific Minds interactive, web-based programs, which include Spanish terms, to teach the academic vocabulary necessary for success on STAAR and EOC assessments. Attendees receive vocabulary game ideas, door prizes, and a free online trial account.

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**What’s New in STEMscopes for Elementary?**

Content – Other  
Grade – Elementary (Pre-K - 2), Elementary (3 - 5)  
Code – WKS3249  
Room – River Level Room 006A & B  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Heather Wilde, Accelerate Learning-STEMscopes

Description – We have given STEMscopes a NEW LOOK and several new features have been added to the Texas STEMscopes curriculum. The scientific explanation framework called Claim-Evidence-Reasoning (CER) has been added to our Evaluate section in order to assess students to the depth and complexity of the standard. We have also added Project-based Learning activities to every scope for additional hands-on, authentic learning! If you are a current elementary school STEMscopes user or would like to learn about this amazing digital curriculum, join us for an engaging session on how to navigate the new look and learn more about the CER and PBL best practice instruction.
**STEM Sisters**

**Content** – Instructional Strategies / Pedagogy  
**Grade** – Elementary (3 - 5)  
**Code** – WKS3252  
**Room** – River Level Room 006D  
**Time** – 1:00:00 PM – 2:00:00 PM

**Presenter(s)** – Lisa Rollins, Texas Council of Elementary Science  
Mayra Montalvo, Texas Council of Elementary Science

**Description** – Why do STEM sisters? There is literature to support that are fewer females in STEM fields. Research has shown boys and girls are equal in abilities but do differ in interest and confidence within STEM fields. Girls and boys take same classes in high school and do well, similar rates in bio sciences but far fewer women in science and engineering, mathematics, and statistics. Our goal would increase self efficacy in girls grade 3 - 5 by nurturing confidence and empowering girls to choose STEM fields as a career. We will explore the engineering design process in our two physical science activities. You will take home free materials and resources ready for implementation. Come engineer with us!

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**Using Edusmart to Plan and Engage STEM Learning**

**Content** – General Science  
**Grade** – Elementary (Pre-K - 2), Elementary (3 - 5), Middle School (6 - 8)  
**Code** – WKS3253  
**Room** – River Level Room 007A  
**Time** – 1:00:00 PM – 2:00:00 PM

**Presenter(s)** – Kelli Mallory, Edusmart  
Mark Dunk, Edusmart

**Description** – How do we leverage the digital world to engage and educate students? How do we connect learning to the real world so students see its relevance? Within Edusmart Math 6-8 and Science K-Biology teachers design and build engaging STEM lessons that consist of high quality video instruction complemented with both online and offline interactive applications, simulations, and activities that connect concepts to real world content applications. Come see how to use Edusmart to enhance STEM learning. Attendees will receive a certificate of attendance for one hour of continuing education credit. Door Prizes!

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**Contagion! Track the Progress of Dangerous Viruses that are Spreading Throughout the Country**
**Solving the Mystery of STEM Using Forensic Science**

Content – Other  
Grade – Middle (6 - 8), High School  
Code – WKS3255  
Room – River Level Room 007C  
Time – 1:00:00 PM – 2:00:00 PM

Presenter(s) – Whitney West, School Specialty

Description – Conduct a number of STEM-focused forensic activities that LINK scientific investigations with analysis and investigative skills to solve multifaceted “cases” involving fingerprint, blood spatter, and document analysis. Apply basic mathematic principles and integrate reading and writing strategies. See how the program uses hands-on strategies to meet the NGSS and state standards.