Hotel Information

Hilton Columbia Center 924 Senate Street, Columbia, South Carolina 29201

Book Online: http://tinyurl.com/yda8442m or http://scscience.org

The South Carolina Science Council (SC)^2 is excited to be hosting our 40th Annual Conference in beautiful Columbia SC, November 8-10, 2017.

(SC)^2 has negotiated special discounted room rates with the Hilton Columbia Center located just steps from the Columbia Metropolitan Convention Center. A block of rooms have been reserved for November 7, 2017 - November 10, 2017. The special room rate will be available until October 6, 2017 or until the group block is sold-out, whichever comes first.

Hilton Columbia Center (Host Hotel) - $144 single or double occupancy for a King or Double Queen standard room

Please make your hotel reservation as soon as possible. Reservations will be made on a VERY LIMITED first-come, first-served basis. For best availability, make your reservation online.

Stay at Hilton Columbia Center in Congaree Vista and be near it all - steps from the State Capitol and Metropolitan Convention Center, a mile from USC, and a quick walk to restaurants, shops and nightlife.

The Hilton Columbia Center has all your favorite perks like complimentary WiFi, a heated outdoor pool, 24-hour fitness center, and generous event space, plus Ruth's Chris Steak House and Bar.

Conference Registration

Pre-Registration is the best route to go. It's not only the most convenient but the most economical. You are encouraged to complete your registration online by visiting http://SCscience.org. If your registration is received by November 1st, you will be emailed a confirmation with entrance ticket, name tag and special event tickets prior to the conference. Bring your email confirmation with you when you come to the conference then turn it in for your conference package at the Check In Desk. If you miss the November 1st Deadline, registration will be available onsite. If paying on-site, credit cards are the only form of payment that will be accepted.

Pre-Registration

If you have pre-registered and received your ticket and name badge emails, go to the Check In area downstairs in the Columbia Metropolitan Convention Center to pick up your conference package. IF YOU HAVE PREREGISTERED by the November 1st deadline and have not received confirmation before November 7th, then please contact Elisa Hill by email at conferencemanager@scscience.org or 803-926-5511 so that we can make sure that we have your conference package ready for you.

On-site Registration

On-site registration will be available for all who did not register by the November 1st Deadline. Onsite registration will be available outside the exhibit hall at the following times:

Wednesday......8:30 a.m. - 6:00 p.m.
Thursday.........7:00 a.m. - 6:00 p.m.
Friday............7:00 a.m. - 10:30 a.m.
Field Trips
Tickets are required for all field trips offered at the conference. These tickets can be purchased through pre-registration or at the Ticket Sales Desk if any remain. For the best selection of field trips, preregister for the field trips you wish to attend. Shuttle service will be available to take you to the desired field trip for most trips. Please see descriptions. Directions will be available at Field Trip Desk for those trips that do not include shuttle service.

Ticketed Workshops
Tickets are required to attend all ticketed workshops. You are encouraged to purchase/reserve tickets with preregistration, but some may be available onsite at the Ticket Sales Desk.

Wednesday Pre-Conference Ticketed Workshops
All Pre-Conference Workshops require pre-registration. These workshops are offered on Wednesday before the conference starts. Please see the Pre-Conference Workshop section of the program for more details.
If you have any questions regarding these workshops, please contact Elisa Hill at conferencemanager@scscience.org or 803-926-5511.
### Registration Fees

**Early Registration** – Registration received on or before October 20, 2017
- Preregistration for (SC)2 Members: $155
- Preregistration for Non-members*: $185
- Preregistration for Full time Students: $55
- Preregistration for Non-teaching Spouse: $25
- Preregistration Child: $25
- One Day (Friday) Registration: $105
- Retired Science Teacher: $105

**Late Registration** – Registration received after October 14, 2016
- Registration for (SC)2 Members: $185
- Registration for Non-members*: $215
- Registration for Full time Students: $80
- Registration for Non-teaching Spouse: $45
- Registration Child: $45
- One Day (Friday) Registration: $105
- Retired Science Teacher: $105

*A non-member who pays a membership fee when registering may register as a member.

**Membership**
- Regular Membership, 1 year: $20
- Regular Membership, 3 years: $60
- Student Membership, 1 year: $10

**Other Fees**

Limited parking is available at Columbia Metropolitan Convention Center. Park Street Garage is located directly across the street from the Convention Center. Charges at Park Street Garage are $2 for the first hour and $1 for every additional hour, not exceeding $10.

Registration Fees listed above do not include hotel, parking, transportation or lunch.

### Ticketed Workshops

Tickets are required to attend all ticketed workshops. You are encouraged to purchase/reserve tickets with preregistration, but some may be available onsite at the Ticket Sales Desk.

#### Wednesday – Pre Conference Workshops

**Pre-Registration Required**

- WS01: SC State Museum Boeing Observatory Workshop (Max 15) Must register with the museum to attend this workshop... $0
- WS02: SC Project Learning Tree Forest Modules (Max 25) $20
- WS03: PEARSON (Max 90) $0
- WS04: Smithsonian Science for the Classroom Institute (Max 95) $0
- WS05: Flying WILD Workshop for Middle School Educators (Max 25) $35
- WS06: Project WILD/Aquatic WILD Workshop... $70
- WS07: Model Rocketry: A Highly Motivational STEM Teaching Tool (Max 36) $12

**Thursday**

- WS08: Science Honing with Hydroponics (Max 25) $5
- WS09: Underwater ROV (Max 40) $25
- WS10: Growing Up WILD Workshop for Educators (Max 25) $30
- WS11: Geology of South Carolina Workshop (Max 50) $20
- WS12: Home and School Science Activities (Max 50) $35
- WS13: Who Killed the Mayor (Max 25) $0

**Friday**

- WS14: Buoying Design Skills: Create Your Own Weather Buoy! (Max 25) $20
- WS15: Cool Problem Based Engineering Challenges in Elementary School (Max 45) $10
- WS16: Engineering Beyond Toothpicks and Straws (Max 45) $10

### Field Trips

Tickets are required for all field trips offered at the conference. These tickets can be purchased through preregistration or at the Ticket Sales Desk, if any remain. Shuttle service is provided for most field trips; trips not having shuttle service are within walking distance to the convention.

**THURSDAY**

- TT1: SOUTH CAROLINA STATE HOUSE TOUR (Min/Max 5/20) $3
- TT2: RIVERBANKS ZOO AND GARDENS - BEHIND THE SCENES AFRICAN ADVENTURE TOUR (Min/Max 12/25) $27
- TT3: PALMETTO OUTDOOR CENTER- INTERDISCIPLINARY WALKING TOUR (Min/Max 5/15) $3
- TT4: CHALLENGER LEARNING CENTER EXPERIENCE (Min/Max 12/24) $12
- TT5: SALUDA SHOALS WETLAND HABITATS (Min/Max 12/28) $12
- TT6: New Learning Opportunities at the South Carolina State Museum (Min/Max 5/15) $3
- TT7: CONGAREE RIVER KAYAK ADVENTURE (Min/Max 6/30) $35
- TT8: EDVENTURE’S: ENGINEERING 101 (Min/Max 5/20) $3

**FRIDAY**

- FT1: SESQUICENTENNIAL STATE PARK TOUR: LIFE IN AN URBAN NATURE FOREST WALK (Min/Max 12/25) $12
- FT2: PALMETTO OUTDOOR CENTER- INTERDISCIPLINARY WALKING TOUR (Min/Max 5/15) $3
- FT3: USC MCKISSIK MUSEUM TOUR AND LUNCH AT THE MCCUTCHEN HOUSE (Min/Max 5/22) $10
- FT4: RIVERBANKS ZOO AND GARDENS – THE LIST: CONSERVATION CHALLENGE TOUR (Min/Max 12/25) $17
- FT5: CONGAREE RIVER KAYAK ADVENTURE (Min/Max 6/30) $35
40th Annual SC Science Council Conference
Conference Schedule

Wednesday, November 8, 2017
Preconference Workshops ..............................................9:00AM – 4:00PM
(See Program for Details; Registration is separate for some events)
Attendee/Presenter Registration .....................................8:30AM – 6:00PM
Vendor/Exhibitor Check-In .............................................3:00PM – 6:00PM

Thursday, November 9, 2017
Attendee/Presenter Registration .....................................6:30AM – 4:00PM
Vendor/Exhibitor Check-In .............................................7:00AM – 9:00AM
First Timers Meeting (Lexington A) ..............................7:15AM – 7:45AM
Opening Session (Ballroom A) .......................................9:00AM – 10:00AM
Keynote Debbie Silver
General Sessions .........................................................8:00AM – 12:15PM
Lunch Break .................................................................12:15PM – 1:15PM
Concessions Available for Purchase in Exhibit Hall
General Sessions .........................................................1:15PM – 5:00PM
Complimentary Refreshments in Check In Area ..........3:00PM – 3:15PM
Presidents Reception ......................................................5:30PM – 7:30PM

Friday, November 10, 2017
Attendee/Presenter Registration .................................6:30AM – 10:30AM
General Sessions .........................................................8:00AM – 9:45AM
(SC)² Business Meeting ................................................10:00AM – 10:45AM
Special Session (Ballroom A) .......................................11:00AM – 12:00PM
Keynote Dr. Zipporah Miller
Lunch Break .................................................................12:00PM – 1:00PM
Concessions Available for Purchase in Exhibit Hall
General Sessions .........................................................1:00PM – 3:45PM

Exhibit Hall
Grand Opening
Thursday 10:00AM-10:30AM
Hours
Thursday 10:00AM-5:00PM
Friday 9:00AM-1:00PM
Passport Contest Drawing
Friday 12:45pm
Exhibitors
Carolina Biological Supply Company
The Citadel
Clemson University College of Engineering, Computing and Applied Sciences
Clemson University’s Youth Learning Institute
Clemson University/Geology K12 Outreach
School Specialty
Delta Education/Foss
CPO Science/Frey Scientific
Diamond Del’s Gem Mining
eNlightenSC
ExploreLearning
Houghton Mifflin Harcourt
Lab-Aids
LearnEd Notebooks
littleBits
McGraw Hill Education
National Geographic Learning/Cengage Learning
PalmettoPride
Palmetto State Teachers Association
Riverbanks Zoo and Garden
Roper Mountain Science Center
S2TEM Centers SC
Savannah River Nuclear Solutions
SCETV
SC Project Learning Tree
SC State Museum
Sparkpoint Innovations
STEMscopes
Sundance/Newbridge Publishing
Texas Instruments
Wake Forest School of Medicine
Ward’s Science and Sargent Welch
# Field Trips

Space is reserved on a first-come, first-served basis. Tickets can be purchased through pre-registration, or on-site if still available. All field trips will depart/return to the convention center loading area if you use the shuttle service or you can drive your personal vehicle. Most are within 5 miles of the convention center. Directions will be available at registration desk.

**Thursday, November 9, 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Field Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00pm-2:30pm</td>
<td><strong>TT1</strong> South Carolina State House Tour</td>
</tr>
<tr>
<td>Min/Max: 5/20</td>
<td>$3.00</td>
</tr>
<tr>
<td></td>
<td>Tour South Carolina's most recognizable Historic Structure, and learn first hand the history of our state through this magnificent building's architecture, history and legislative process. You will gain not only a respect for the past but a sense of responsibility for the future. Inside and out, from foundation to dome, the State House, as a result of the 1995-98 renovation, is in better shape than ever before. The work balanced the need to meet modern code requirements and improved efficiency against a respect for historic form and appearance. Most visitors will never see the structural improvements, the sophisticated electrical wiring, alarm systems, or the state-of-the-art earthquake isolators that were installed. However, everyone will notice the renewal of the House and Senate chambers, the 19th century treatment of the lobby, the vaulted brickwork in the hallways of the lower floor, the restored marble floors and refurbished interior of the dome. Because of the proximity of the SC State House there will not be a shuttle service provided. Participants will meet at the Field Trip Check-In at 10:00am and walk the 2 blocks to the State House.</td>
</tr>
<tr>
<td>11:45am - 3:30pm</td>
<td><strong>TT2</strong> Riverbanks Zoo and Gardens - Behind the Scenes African Adventure Tour</td>
</tr>
<tr>
<td>Min/Max: 12/25</td>
<td>$27.00</td>
</tr>
<tr>
<td></td>
<td>No need for a plane ticket. You can explore the signs and sounds of Africa at Riverbanks Zoo and Garden. Experience the Wild Side as you get an inside look at some out-of-site places. Encounter animals up close, explore behind the scenes and meet experienced keepers. Participants will wander through the elephant barn while our elephant girls are out for the day. You will see what is required behind the scenes to keep the elephants happy and healthy. Participants will learn about the unique challenges of exotic animal care and the amazing efforts that go into creating and sustaining a world-class zoo. The tour also includes other animal areas and plenty of photo opportunities. Also enjoy some individual exploration of the Zoo and Gardens.</td>
</tr>
<tr>
<td>11:30am-1:30pm</td>
<td><strong>TT3</strong> Palmetto Outdoor Center - Interdisciplinary Walking Tour</td>
</tr>
<tr>
<td>Min/Max: 5/15</td>
<td>$3.00</td>
</tr>
<tr>
<td></td>
<td>Palmetto Outdoor Center offers an interactive riverwalk tour that will excite and engage. The tour highlights and interprets the educationally-rich areas of Columbia and details how the Three Rivers region has shaped Columbia, SC. By combining specific aspects of the riverwalk, the tour covers a variety of topics relating to geography, ecology and, historical events that pertain to the area. By the end of the tour you will be surprised at all the discoveries along the way. The shuttle will depart the Conference Center at 11:30pm and return at 1:30pm.</td>
</tr>
<tr>
<td>1:00pm-3:30pm</td>
<td><strong>TT4</strong> Challenger Learning Center Experience</td>
</tr>
<tr>
<td>Min/Max: 12/24</td>
<td>$12.00</td>
</tr>
<tr>
<td></td>
<td>The Challenger Learning Center is an exciting hands-on aeronautics and space-themed educational program designed to provide interactive learning experiences, integrating science and math curricula with information and technology. Come experience a simulated space mission... be an engineer in Mission Control and an astronaut on the Space Station! Find out why students say we are the best field trip ever! Participants will also get an overview of other programs offered at Challenger: aerospace/ aviation education, robotics, rocketry, and our ePlanetarium. The (SC)² Shuttle will depart the Conference Center at 1:00pm and return at 3:30pm.</td>
</tr>
<tr>
<td>1:00pm-3:45pm</td>
<td><strong>TT5</strong> Saluda Shoals Wetland Habitats</td>
</tr>
<tr>
<td>Min/Max: 12/22</td>
<td>$12.00</td>
</tr>
<tr>
<td></td>
<td>Join the Saluda Shoals’ Lead Interpretive Park Ranger as you explore the wetland habitats around Saluda Shoals Park. Saluda Shoals Park is a premier, natural, environmentally sensitive riverfront park that invites visitors to experience the treasures of the Saluda River through exceptional educational, recreational and cultural opportunities. Located along the banks of the beautiful Saluda River. The (SC)² Shuttle will depart the conference center at 1:00pm and return at 3:45pm.</td>
</tr>
<tr>
<td>1:00pm-4:00pm</td>
<td><strong>TT6</strong> New Learning Opportunities at the South Carolina State Museum</td>
</tr>
<tr>
<td>Min/Max: 20/205</td>
<td>$5.00</td>
</tr>
<tr>
<td></td>
<td>Explore all of the new education opportunities at the State Museum, including the Blue Cross Blue Shield of South Carolina Planetarium, Boeing Observatory, 4D Theater and Julius Caesar Blockbuster exhibit. Your trip will include a brief introduction by one of the State Museum staff to museum educational offerings and time to chat with Boeing Observatory educators about our on-site and distance learning activities. Of course you’ll have time to explore the familiar and new exhibits while there. Because of the proximity of the State Museum there will not be a shuttle service provided. The museum is .8 miles from the Convention Center. Participants should meet in the lobby of State Museum at 1:00pm.</td>
</tr>
<tr>
<td>1:00pm-5:00pm</td>
<td><strong>TT7</strong> Congaree River Kayak Adventure</td>
</tr>
<tr>
<td>Min/Max: 6/30</td>
<td>$35.00</td>
</tr>
<tr>
<td></td>
<td>Join Palmetto Outdoor Center guides on this three mile guided kayak trip down the beautiful Congaree River. Come explore the scenic landscape of the Congaree waterways. This is an excellent trip for a beginner or experienced paddler. Bring your camera, binoculars, and dress for the weather. Hats, sunscreen, and bottled water are recommended. The shuttle will depart the Conference Center at 1:00pm and return at 5:00pm.</td>
</tr>
<tr>
<td>3:15pm-5:30pm</td>
<td><strong>TT8</strong> EdVenture’s: Engineering 101</td>
</tr>
<tr>
<td>Min/Max: 5/20</td>
<td>$3.00</td>
</tr>
<tr>
<td></td>
<td>Join EdVenture’s educators as they have participants engage in a series of activities designed to inspire young engineers. Teachers will participate in several engineering challenges that they can take back to their classrooms, as well as explore the museum to learn about our programs and opportunities. Because of the proximity of EdVenture there will not be a shuttle service provided. EdVenture is .8 miles from the Convention Center. Participants should meet in the lobby of EdVenture at 3:15pm.</td>
</tr>
</tbody>
</table>
Field Trips

Space is reserved on a first-come, first-served basis. Tickets can be purchased through pre-registration, or on-site if still available. All field trips will depart/return to the convention center loading area if you use the shuttle service or you can drive your personal vehicle. Most are within 5 miles of the convention center. Directions will be available at registration desk.

Friday, November 10, 2017

8:30am - 11:00am FT1
Min/Max : 12/25
$12.00
Sesquicentennial State Park Life in an Urban Forest Nature Walk
Join us at Sesquicentennial State Park in Northeast Columbia as we explore Sesqui’s sandhills and learn about this unique and delicate Carolina ecosystem. Participants will also find out what animals and plants call the park home while enjoying the sights and sounds of the forest. This is a half-mile walk on uneven terrain. Dress appropriately and wear comfortable shoes.

The (SC)2 Shuttle will depart the conference center at 8:30am and return at 11:00am.

9:00am - 11:00am FT2
Min/Max : 5/15
$3.00
Palmetto Outdoor Center: Interdisciplinary Walking Tour
Palmetto Outdoor Center offers an interactive riverwalk tour that will excite and engage. The tour highlights and interprets the educationally rich areas of Columbia and details how the Three Rivers region has shaped Columbia, SC. By combining specific aspects of the riverwalk, the tour covers a variety of topics relating to geography, ecology and, historical events that pertain to the area. By the end of the tour you will be surprised at all the discoveries along the way.

The Palmetto Outdoor Center shuttle will depart the Conference Center at 9:00am and return at 11:00am.

10:00am - 12:30pm FT3
Min/Max : 5/22
$10.00 *
USC McKissik Museum Tour and Lunch at the McCutchen House
The McKissick Museum is located at the heart of the historic Horseshoe on the Columbia campus of the University of South Carolina. It was established in 1976 by the University Board of Trustees to bring together under one roof the many object collections housed in various departments and colleges across campus. These collections date to 1801 and provide insight into the long and illustrious history of the University. Special focus will be made on the Natural History collection. Following the tour we will be treated to a gourmet lunch dining experience at the McCutchen House. One of the original buildings erected on the university’s Horseshoe, the McCutchen House was built in 1813 as the second faculty residence on the South Carolina College campus. The students of the School of Hotel, Restaurant and Tourism Management will prepare and serve a four course luncheon. Meals feature their famous tomato pie, soup, salad, plated entrée and dessert bar.

Because of the proximity of the McKissik and McCutchen, there will not be a shuttle service provided. The McKissik and McCutchen are .08 miles from the Convention Center. Participants should meet in the lobby of the McKissik Museum at 10am and are encouraged to car pool if driving.

* Gratuity is not included in the price of the field trip. Please tip your wait staff accordingly.

12:30pm - 4:15pm FT4
Min/Max : 12/25
$17.00
Riverbanks Zoo and Gardens - The List: Conservation Challenge Tour
Some celebrities make the “A” list; some animals make the “E” list. Making the list is great for celebrities, but not for animals. Tour the Zoo to see animals that have made the list and animals that have made it off the list. Find out what Riverbanks is doing to get animals off the list and to help prevent animals from making the list in the future. Also enjoy some individual exploration of the Zoo and Gardens.

The (SC)2 Shuttle will depart the conference center at 12:30pm and return at 4:15pm.

1:00pm - 5:00pm FT5
Min/Max : 6/30
$35.00
Congaree River Kayak Adventure
The Congaree Riverkeeper and other Palmetto Outdoor Center guides on this three mile guided kayak trip down the beautiful Congaree River. Come explore the scenic landscape of the Congaree waterways. This is an excellent trip for a beginner or experienced paddler. Bring your camera, binoculars, and dress for the weather. Hats, sunscreen, and bottled water are recommended.

Please note that this trip will end after the Conference ends, so you will need to take all of your belongings with you when you depart the Conference Center.
SUPPLEMENTAL WORKSHOPS : TUESDAY, NOVEMBER 7, 2017

All Pre-Conference Workshops Require Pre-Registration.

<table>
<thead>
<tr>
<th>Time</th>
<th>Workshop Name</th>
<th>Max:</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00am - 10:45pm</td>
<td>Project Learning Tree PreK-8 Workshop</td>
<td>15</td>
<td>Free</td>
</tr>
<tr>
<td>10:00am - 12:00pm</td>
<td>Smithsonian Science for the Classroom Institute</td>
<td>25</td>
<td>$20.00/person</td>
</tr>
<tr>
<td>1:00pm - 4:00pm</td>
<td>Flying WILD Workshop</td>
<td>25</td>
<td>$35.00/person</td>
</tr>
</tbody>
</table>

Please see the Conference Program for additional workshops and details.
Ticketed Workshops

THURSDAY, NOVEMBER 9, 2017

Tickets are required to attend all ticketed workshops.

You are encouraged to purchase/reserve tickets with preregistration, but some may be available onsite at the Ticket Sales Desk.

Growing Up WiLD
Nancy Thompson, Ray Thompson - WILD in SC, Ltd Co.

This hands-on presentation will show how to use a children's trade book to explore gravity and end up with a STEAM creative display! Participants will create the STEAM project using paints and should come comfortable and ready to have fun as well as learn!

Location: Ballroom B1
Type of Session: Hands-On Workshop (Ticketed w/ fee)
Audience: Early Elementary, General (suggested for educators of students ages 3-7, activities similar to those found in Project WILD but adapted for the young child.)

Geology of South Carolina Workshop
John Wagner - Clemson University

Explore the landforms and rock/mineral distribution patterns of South Carolina in relation to its long and complex geologic history. Participants receive a set of laminated maps and other materials.

Location: Hall of Fame Meeting Room
Type of Session: Hands-On Workshop (Ticketed w/ fee)
Audience: General

Buoying Design Skills: Create Your Own Weather Buoy!
EV Bell - SC Sea Grant Consortium

Yeah Buoy! Learn how to lead teams of students through this STEM-based activity designed to construct a weather buoy complete with real-time data sensors. Working within a budget will provide a “real world” scenario, freedom of design will encourage creativity, and analyzing real-time data taken during the workshop will be used to discuss how buoys help predict weather patterns. Participants will receive buoy curriculum and supplies for their very own buoy — a few lucky winners will go home with the data collection unit!

Location: Carolina A
Type of Session: Hands-On Workshop (Ticketed no fee)
Audience: Elementary, Middle School, High School

FRIDAY, NOVEMBER 10, 2017

Cool Problem Based Engineering Challenges in Elementary School
Ronda Steadman-Maurice

Let’s go beyond toothpick and straw engineering challenges in elementary school. This Hands-on session will provide participants with exciting Problem Based Engineering Learning experiences that can be easily implemented and adjusted to support South Carolina State Standards.

Location: Ballroom B1
Type of Session: Hands-On Workshop (Ticketed w/ fee)
Audience: Elementary

Engineering Beyond Toothpicks and Straws
Ronda Steadman-Maurice

Let’s go beyond toothpick and straw engineering challenges in elementary school. This Hands-on session will provide participants with exciting Problem Based Engineering Learning experiences that can be easily implemented and adjusted to support South Carolina State Standards.

Location: Ballroom B1
Type of Session: Hands-On Workshop (Ticketed w/ fee)
Audience: Early Elementary
Thursday General Sessions

THURSDAY, NOVEMBER 9, 2017

8:00am-8:45am  Session 097
Max : 50
Bringing Science to Life with BREAKOUT EDU
MyKeida Middleton - St. Matthews K-8 School
Teachers will use a BREAKOUT EDU kit to explore several scientific concepts in order to escape the room before time is up. This is a great resource to engage students of all ages. Activities and lessons can be modified or developed with ease.
Type of Session: Presentation
Target Audience: Elementary, Middle School
Core Focus: Engineering, Technology and Applications Science, General
Conference Strand: Resources and Opportunities

8:00am - 8:45am  Session 010
Max : 45
Using Edpuzzle to Inform Instruction
Kimberly Pauls - Riverside High School
Edpuzzle is a flipped classroom technology tool that provides teachers with formative assessment data that can be used to create purposeful groups for in-class practice and/or to plan remediation.
Type of Session: Hands-On Workshop (Non Ticketed)
Target Audience: Middle School, High School
Core Focus: Chemistry, General
Conference Strand: Assessment that Informs Instruction

8:00am - 8:45am  Session 086
Max : 95
Forensics: The All-Natural, Organic SEP and Core Content Enhancement
Karen Griffin - Academy for the Arts, Science and Technology
Want students who are involved and on-task? Learn how to strengthen SC Science and SEP Standards through forensics. Leave with real-world, PBL core content lessons taught through a forensics lens.
Type of Session: Presentation
Target Audience: High School
Core Focus: Biology/Life Science, Chemistry, Physical Science, Engineering, Technology and Applications Science, General, Forensic Science, Math
Conference Strand: SEPs & STEM/STEAM, Project and Problem-Based Learning

8:00am - 8:45am  Session 006
Max : 50
Math in Elementary Life Science Classes: Using Survivorship Curves to Teach Graphing and Data Analysis
Lisa Pike - FMU
Often math gets left behind in life science, versus physical science, especially in early grades. Play with bubble babies in this hands-on exploration. Focus: experimental design, graphing and data analysis.
Type of Session: Hands-On Workshop (Non Ticketed)
Target Audience: Elementary, Middle School
Core Focus: Biology/Life Science
Conference Strand: SEPs & STEM/STEAM

8:00am - 8:45am  Session 44A
Max : 50
Adaptive Technology: Game-Changer for Science Marterny
Jane Dennerlein, Shelly McClanahan - McGraw Hill Education
LearnSmart adaptive technology can reach all levels of learners and lift student performance on tests. Uses technology in the best possible way to put each student on their own personalized learning path toward success.
Type of Session: Commercial Presentation
Target Audience: Middle School, High School
Core Focus: General
Conference Strand: Disciplinary Literacy, Resources and Opportunities, Assessment that Informs Instruction

8:00am - 8:45am  Session 012
Max : 90
Engaging Students in Environmental Science in Urban Environments: Using Carys Lake to Foster Scientific Thinking in Middle School
Rachel Tustin - Dent Middle School
In this session, we will look at how we used Carys Lake to teach problem-based learning, modeling, and data interpretation in an urban school district.
Type of Session: Presentation
Target Audience: Elementary, Middle School
Core Focus: Biology/Life Science, Chemistry, Environmental Science
Conference Strand: Project and Problem-Based Learning

8:00am-8:45am  Session 020
Max : 50
Collaborate with CATE: Natural Disasters Impact Study
Dana McCallum - Academy for the Arts, Science and Technology
Collaboration with CATE teachers can lead to masses of interest--and a very busy biology class trying to solve a variety of problems while the anatomy class diagnoses injuries galore!
Type of Session: Presentation
Target Audience: High School
Core Focus: Biology/Life Science, Engineering, Technology and Applications Science, Health Science (CATE)
Conference Strand: Project and Problem-Based Learning

8:00am-8:45am  Session 014
Max : 50
Teaching with Toys
Scott Buhr - Hillcrest High School
Who doesn’t love toys? Students of all ages will crow you “king of the classroom” when you engage them with simple toys that demonstrate scientific principles.
Type of Session: Presentation
Target Audience: Early Elementary, Elementary, Middle School, High School, College
Core Focus: Chemistry, Physical Science, Engineering, Technology and Applications Science, Physics
Conference Strand: Resources and Opportunities, Project and Problem-Based Learning

8:00am-8:45am  Session 125
Max : 45
Seeds to Shoreline
Cindy Lilly - Ocean Bay Middle School
Learn how you can involve your students in a hands-on project based learning while making a difference in our environment. Science and Engineering practices are heavily used!
Type of Session: Presentation
Target Audience: Elementary, Middle School, High School
Core Focus: Environmental Science
Conference Strand: Project and Problem-Based Learning
### Thursday General Sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Max:</th>
<th>Description</th>
</tr>
</thead>
</table>
| 8:00am - 8:45am | 023            | 35   | **E.M.S. - Engaging Mental Strategies**  
Tujuana Griffin, Jenny Risinger - Brewer Middle School  
Come and learn about how to help your students engage with texts and include the arts all while thinking like scientists. We will practice literacy strategies together in this session. **Type of Session**: Presentation  
**Target Audience**: Middle School  
**Conference Strand**: Disciplinary Literacy |
| 10:30am - 12:15pm | 133            | 24   | **Science as a Verb - STEM in Action**  
Dr. Debbie Silver  
Dr. Debbie Silver is a former classroom science teacher who has remained active in science reform teaching for over 30 years as well as STEM since its inception. In this lively session Dr. Silver demonstrates proven techniques for engaging all types of learners in the science processes. Her belief is that the best science teaching starts with active, engaging learning. She gives ‘how to’ tips on everything from safety to managing materials to how to set up cooperative groups. She offers loads of ideas and gives helpful technology resources. **Type of Session**: Presentation  
**Target Audience**: Middle School  
**Conference Strand**: SEPs & STEM/STEAM |
| 10:30am - 12:15pm | 085            | 100  | **How to Address the Difficult Topic of Climate Change**  
Bridget Miller - University of South Carolina  
The earth's climate is changing and with it brings changes to our ecosystem and the way we live. The topic of climate change is a hot button topic that brings many challenges. This session is an informal discussion on how to address the issue of climate change with students in a manner that reduces controversy. **Type of Session**: Share a Thon, Informal Setting  
**Target Audience**: Elementary, Middle School  
**Conference Strand**: Project and Problem-Based Learning |

#### Keynote Speaker: Dr. Debbie Silver

**9:00am - 10:00am**  
**Ballroom A**  
Her mission is to remind teachers of how important they are in the lives of children, highlighting both learning theory as well as tools for communication. She makes important points while sharing poignant stories and lots of laughs. She firmly believes that teachers need to be having fun and staying in touch with their passion, to make their biggest impact in the classroom.  
**Dr. Debbie Silver, Keynote Speaker**
Thursday General Sessions

10:30am-12:15pm  Session 022
Max : 50

Using FAS (Formative Assessment Strategies) in the Science Classroom
Kyreem Oakes, Colette Dryden - Richland One

Participants will engage in activities to explore formative assessment strategies and how to use the data to create a plan for differentiated instruction. Resources will be given to support instruction.

Type of Session: Presentation
Target Audience: Elementary
Core Focus: General
Conference Strand: Assessment that Informs Instruction

10:30am-12:15pm  Session 084
Max : 35

Man vs. Wild: Lessons on the Earth and Human Impact
Marla Sanders - Columbia College

Engage in thought-provoking, multi-disciplinary activities to trace human population changes and impacts on the earth and ecosystems over the past two centuries.

Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Middle School
Core Focus: Biology/Life Science, Environmental Science
Conference Strand: SEPs & STEM/STEAM

10:30am-12:15pm  Session 143
Max : 95

Exploring the Possibilities of STEAM from Theory to Practice
Dr. Merrie Koester - USC Center for Science Education, Dr. Pamela Vereen - Georgetown County School District, Mr. Rodney Moore - Charleston County School District, Dr. Meta Van Sickle - College of Charleston, Dr. Jennifer Albert - the Citadel

A panel of science district leaders and STEAM specialists will explore with you the possibilities of models of STEAM that meet the needs of diverse learners, feature collaboration between science and arts educators, and have a high degree of academic rigor, critical thinking, creative problem solving, and cultural responsiveness. They will then share examples of many kinds of STEAM lessons that are being field tested through research in SC. We will invite you to share what works for you in STEAM, too!

Type of Session: Hands on Workshop (Non Ticketed)

10:30am-12:15pm  Session 026
Max : 50

Literacy Puts Science in ACTION
DeDee Quinn - S2STEM Centers SC

How do disciplinary literacy strategies put science in action? This interactive session provides strategies that are easily implemented and supports both the SEP's and Profile of the South Carolina Graduate.

Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Elementary, Middle School
Core Focus: General
Conference Strand: Disciplinary Literacy

10:30am-12:15pm  Session 152
Max : 35

You've Got the POWARR
Dr. Marquita Smith Blades - Dr. Blades Consulting

In this interactive workshop, participants will learn to incorporate literacy into any STEM lesson using the POWARR Method of predicting, observing, writing, analyzing, researching, and reporting.

Type of Session: Hands on Workshop (Non Ticketed), Commercial Presentation
Target Audience: Middle School, High School
Core Focus: General
Conference Strand: Disciplinary Literacy

10:30am-11:15am  Session 075
Max : 50

Students as Creators
Denise Wright - Horry County Schools

In this session participants will review virtual tools that allow science students to be creators instead of consumers of content. Tools, such as augmented reality, digital science story telling, explaining and diagramming models will be discussed in this session. The emphasis of providing student choice will be highlighted during this session.

Type of Session: Presentation
Target Audience: General
Core Focus: General
Conference Strand: Project and Problem-Based Learning

10:30am-11:15am  Session 093
Max : 50

PAEMST
Jeffrey Burden - PAEMST

If you are interested in a $10,000 prize, a trip to Washington DC and honing your skills as a teacher, come learn more about PAEMST-President's Award for Excellence in Math and Science Teaching.

Type of Session: Presentation
Target Audience: Early Elementary, Elementary
Core Focus: PAEMST
Conference Strand: Recognition of Teaching Excellence in Science

10:30am-11:15am  Session 149
Max : 90

Nuclear Chemistry Through the Eyes of a Student
Jacqueline Orgain - Pearson

Put yourself in your student’s shoes! Participants will experience several of Pearson’s interactive digital activities through the eyes of a student. Activities in this session will focus on the challenging Nuclear Chemistry topics, including radiation types, applications, half-lives, and digital labs with data collection.

Type of Session: Commercial Presentation
Target Audience: High School
Core Focus: Chemistry, Use of Technology in the Active Science Classroom
Conference Strand: SEPs & STEM/STEAM, Resources and Opportunities, Project and Problem Based Learning
Thursday General Sessions

10:30am-11:15am Session 103
Max : 50
School Wide STEAM DAY on a Budget
Ronda Steadman-Maurice - Caughman Road Elementary School
This presentation will introduce participants to the planning and implementing of a school wide STEAM day on the Elementary school level. The presenter will share scheduling tips, learning experiences for students of all grade levels as well as how to increase community involvement. Participants will walk away with a wealth of resources to support the implementing of a school wide STEAM Day on a budget.

Type of Session: Presentation
Target Audience: Elementary, Elementary
Core Focus: Engineering, Technology and Applications Science, Sharing STEAM Information with Community
Conference Strand: SEPs & STEM/STEAM
10:30am-11:15am Session 44B
Max : 50
Adaptive Technology: Game-Changer for Science Mastery
Jane Dennerlein, Shelly McClanahan - McGraw Hill Education
LearnSmart adaptive technology can reach all levels of learners and lift student performance on tests. Uses technology in the best possible way to put each student on their own personalized learning path toward success.

Type of Session: Commercial Presentation
Target Audience: Elementary, Elementary
Core Focus: General
Conference Strand: Disciplinary Literacy, Resources and Opportunities, Assessment that Informs Instruction
11:30am-12:15pm Session 032
Max : 45
NASCAR PBLs > Beyond S=D/T
Eliza Russell - NASCAR Hall of Fame
Racing and NASCAR is more than applied science, it is real-world engineering, math and technology at 200 mph. Discover and work on PBLs that extend learning beyond the classroom.

Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Elementary, Middle School, High School
Core Focus: Physical Science, Engineering, Technology and Applications Science
Conference Strand: Project and Problem-Based Learning
11:30am-12:15pm Session 068
Max : 50
Why is that? Common Science Misconceptions You Can Easily Dispell
Laurie Merlo, Thom O'Brien - ExploreLearning
Fun, informative session using simulations to bring understanding and "ahh-hah" moments. Such as: Why hotter in summer? Does everything fall at the same rate? And many more.....

Type of Session: Commercial Presentation
Target Audience: Elementary, Middle School, High School
Core Focus: Biology/Life Science, Chemistry, Earth/Space Science, Physical Science, Engineering, Technology and Applications Science
Conference Strand: Disciplinary Literacy, SEPs & STEM/STEAM, Resources and Opportunities, Project and Problem-Based Learning
11:30am-12:15pm Session 150
Max : 90
Charge up your Physics Classroom
Jacqueline Orgain - Pearson
Participants will get a "jolt" out of becoming students for the day while engaging in Pearson's digital tools, activities, and interactive animations. Activities in this session will explore the electrical concepts of Resistance, Current, Voltage, and Circuits.

Type of Session: Commercial Presentation
Target Audience: High School
Core Focus: Physics, Use of Technology in the Active Science Classroom
Conference Strand: SEPs & STEM/STEAM, Resources and Opportunities, Project and Problem-Based Learning
11:30am-12:15pm Session 017
Max : 50
Literacy in STEM-Science: Doing It Right
Suzan Morris, Becky Gibson - STEMscopes
Join us as we learn the power of using Close Reading strategies to engage students in reading, writing, and discussing the science text in collaborative groups, which will lead to student mastery and high achievement. This session will convince you that your students CAN read science and build the capacity for scientific literacy success in your STEM classroom.

Type of Session: Hands on Workshop (Non Ticketed), Commercial Presentation
Target Audience: Elementary, Middle School, High School
Core Focus: Physical Science, General
Conference Strand: Project and Problem-Based Learning
11:30am-12:15pm Session 052
Max : 50
Nuclear Science Activities that Anyone Can Use
Brian Powell, John Wagner - Clemson University
Try out some simple, safe, and non-threatening inquiry-based classroom activities that demonstrate basic nuclear science concepts and principles without requiring special equipment or exposure to hazardous materials.

Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Middle School, High School
Core Focus: Physical Science, Environmental Science, Engineering, Technology and Applications Science
Conference Strand: Project and Problem-Based Learning
1:15pm-3:00pm Session 025
Max : 50
(SEP) Super Exciting and Powerful
Alice Gilchrist - S2TEM Centers SC
You thought I was talking about Science and Engineering Practices? Well, I am! Come and experience why they are Super Exciting and Powerful. Participants will gain knowledge for immediate implementation!

Type of Session: Presentation
Target Audience: Early Elementary, Elementary
Core Focus: General
Conference Strand: SEPs & STEM/STEAM

“Science in Action”
Thursday General Sessions

1:15pm-3:00pm  Session 055
Max : 50
Gardening is for the Birds
Dr. Arlene Marturano - Cornell Lab of Ornithology and the SC Garden-based Learning Network
Get a bird's eye view of how the joint study of ethology and gardening led students to design, install and maintain a public teaching garden attracting resident and migratory birds.
Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Early Elementary, Elementary, Middle School, Informal Educators, Teacher Educators
Core Focus: Biology/Life Science, Environmental Science
Conference Strand: Project and Problem-Based Learning

1:15pm-3:00pm  Session 101
Max : 50
Innovative Coding and Design
Jamila Gadsden - Texas Instruments
Teach your students basic coding and design and use those skills to program and build working solutions, and connect science, technology, engineering and math (STEM) concepts.
Type of Session: Hands on Workshop (Non Ticketed), Commercial Presentation
Target Audience: Middle School, High School
Core Focus: Engineering, Technology and Applications Science
Conference Strand: SEPs & STEM/STEAM

1:15pm-2:00pm  Session 072
Max : 50
Creating an Inquiry-Based Learning Culture for Student Success
Stan Hill - Wake Forest School of Medicine, Nakita Griffin-Hanna - Anderson 5 School District
Discover an engaging Inquiry-Based Learning approach capable of transforming school by motivating students to achieve through instructional standards and PBL cases. Participants will experience a hands-on student inquiry.
Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Early Elementary, Elementary, Middle School High School
Core Focus: General
Conference Strand: Project and Problem-Based Learning

1:15pm-2:00pm  Session 094
Max : 50
What is a Species?
Linda Culpepper - Lab Aids
Participants learn about conditions that lead to speciation, including isolation due to temporal, geographical, and behavioral factors, and more.
Type of Session: Hands on Workshop (Non Ticketed), Commercial Presentation
Target Audience: High School
Core Focus: Biology/Life Science
Conference Strand: Resources and Opportunities, Project and Problem-Based Learning

1:15pm-2:00pm  Session 151
Max : 90
Pearson Interactive Science K-8: Practical Tips for Engaging Young Scientists
Gayle Hinton - Pearson
Are you currently using Pearson Interactive Science? Learn practical tips and best practices for facilitating the hands-on and digital aspects of the program.
Type of Session: Commercial Presentation
Target Audience: Early Elementary, Elementary, Middle School
Core Focus: Use of Technology in the Active Science Classroom
Conference Strand: SEPs & STEM/STEAM Resources and Opportunities, Project and Problem-Based Learning

1:15pm-2:00pm  Session 094
Max : 50
Preparing Students for the Ever-Changing World of Science
Judy Smith - Sundance Newbridge
Information, particularly scientific information, is endlessly updating and changing. In this hands-on session, elementary educators will practice the skills that their students must have in order to thrive in the information age. Educators will leave with both the skills and a packet of science books for their use.
Type of Session: Hands on Workshop (Non Ticketed), Commercial Presentation
Target Audience: Early Elementary, Elementary
Core Focus: General
Conference Strand: Disciplinary Literacy
### Thursday General Sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:15pm-2:00pm</td>
<td>073</td>
<td>STEM - Got to Be More Than Rockets and Robots Thom O'Brien - ExploreLearning</td>
</tr>
<tr>
<td></td>
<td>029</td>
<td>STEPs &amp; STEM/STEAM, Project Disciplinary Literacy Elementary, Middle School, High School</td>
</tr>
<tr>
<td></td>
<td>147</td>
<td>STEPs &amp; STEM/STEAM, Engineering, Technology and Applications Science Conference Strand: GENERAL</td>
</tr>
</tbody>
</table>

### Session 073
- **Max**: 50
- **Type of Session**: Hands on Workshop (Non Ticketed)
- **Target Audience**: Elementary, Middle School
- **Core Focus**: Biology/Life Science, Chemistry, Physical Science, Engineering, Technology and Applications Science

### Session 029
- **Max**: 50
- **Type of Session**: Hands on Workshop (Non Ticketed)
- **Target Audience**: Middle School
- **Core Focus**: Engineering, Technology and Applications Science Conference Strand: SEPs & STEM/STEAM

### Session 147
- **Max**: 95
- **Type of Session**: Hands on Workshop (Non Ticketed)
- **Target Audience**: Middle School
- **Core Focus**: Biology/Life Science, Chemistry, Physical Science, Engineering, Technology and Applications Science

### Session 031
- **Max**: 45
- **Type of Session**: Hands on Workshop (Non Ticketed)
- **Target Audience**: Elementary, Middle School, High School
- **Core Focus**: Biology/Life Science, Engineering, Technology and Applications Science Conference Strand: SEPs & STEM/STEAM

### Session 034
- **Max**: 50
- **Type of Session**: Hands on Workshop (Non Ticketed)
- **Target Audience**: Middle School
- **Core Focus**: Physical Science, Chemistry Conference Strand: SEPs & STEM/STEAM

---

**Note**: The text provided covers sessions and workshops at the CONFERENCE PROGRAM, focusing on various educational topics related to science, technology, engineering, and mathematics (STEAM). Each session includes details such as the maximum number of attendees (Max), type of session, target audience, and core focus areas. The sessions cover a range of topics from hands-on workshops to presentations on innovative teaching methods and strategies for improving student engagement and understanding. The conference aims to provide educators with resources and strategies to enhance their teaching practices, particularly for the middle grades level. The sessions emphasize the importance of integrating literacy and collaboration into the science classroom and the role of simulations in making learning more engaging. Additionally, there are sessions dedicated to using Google Classroom to gamify the classroom and incorporating story-based learning to make science content more appealing to students.
| Session | Time       | Conference Strand | Core Focus: | Target Audience: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed | Type of Session | Target Audience: | Core Focus: | Conference Strand: | Ticketed |
### Thursday General Sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Max</th>
<th>Type of Session</th>
<th>Target Audience</th>
<th>Core Focus</th>
<th>Conference Strand</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:15pm-4:00pm</td>
<td>078</td>
<td>Raspberry Pi - What is it?</td>
<td>Denise Wright - Horry County Schools</td>
<td>35</td>
<td>Presentation</td>
<td>General</td>
<td>Technology, Science</td>
<td>Project and Problem-Based Learning</td>
</tr>
<tr>
<td>4:15pm-5:00pm</td>
<td>066</td>
<td>Teaching About Plants Using Technology and Everyday Materials</td>
<td>Stephen Thompson - University of South Carolina</td>
<td>35</td>
<td>Hands on Workshop (Non Ticketed)</td>
<td>Elementary, Middle School</td>
<td>Chemistry, Environmental Science</td>
<td>Biology/Life Science, Engineering, Technology and Applications Science</td>
</tr>
<tr>
<td>3:15pm-4:00pm</td>
<td>048</td>
<td>Raspberry Pi - What is it?</td>
<td>Denise Wright - Horry County Schools</td>
<td>50</td>
<td>Presentation</td>
<td>Middle School</td>
<td>Technology, Science</td>
<td>Disciplinary Literacy</td>
</tr>
<tr>
<td>4:15pm-5:00pm</td>
<td>090</td>
<td>Take Control of the Wheel</td>
<td>Karen Griffin - Academy for the Arts, Science and Technology</td>
<td>100</td>
<td>Presentation</td>
<td>General</td>
<td>Lifescience</td>
<td>SEPs &amp; STEM/STEAM</td>
</tr>
<tr>
<td>4:15pm-5:00pm</td>
<td>058</td>
<td>Global Warming! Serious Threat! Eco-Friendly Alternatives...</td>
<td>Mamata Nanda - Jasper County Alternative Program</td>
<td>45</td>
<td>Presentation</td>
<td>High School</td>
<td>Environmental Science</td>
<td>Assessment that Informs Instruction</td>
</tr>
<tr>
<td>4:15pm-5:00pm</td>
<td>064</td>
<td>Beginning Science Practices and CFU's</td>
<td>Mark Davidson - Lee Central High School</td>
<td>50</td>
<td>Presentation</td>
<td>General</td>
<td>Environmental Science</td>
<td>Assessment that Informs Instruction</td>
</tr>
<tr>
<td>4:15pm-5:00pm</td>
<td>146</td>
<td>Collecting Evidence Through Real World Models or How Does an Owl Get All That Energy?</td>
<td>Mary Beth Meggett, Rodney Moore - Carolina Biological Sciences</td>
<td>100</td>
<td>Presentation</td>
<td>High School</td>
<td>Environmental Science</td>
<td>SEPs &amp; STEM/STEAM</td>
</tr>
</tbody>
</table>

---

**Conference Strand:** Project and Problem-Based Learning

**Core Focus:** General

**Types of Sessions:** Presentation, Hands on Workshop (Non Ticketed), Disciplinary Literacy, SEPs & STEM/STEAM, Resources and Opportunities, Assessment that Informs Instruction.
Friday General Sessions

FRIDAY, NOVEMBER 10, 2017

8:00am-9:45am  Session 111

Max : 50

CPO's Chemistry Models Link Learning Module: Fun with Atom Building Games and the Periodic Table
Erik Benton - CPO Science/Frey Scientific

CPO's Link Chemistry Models module is a STEM and NGSS based approach that lets students experience innovative activities to learn atomic structure and the periodic table. We will use an experience-based learning environment with hands-on equipment to study bonding, isotopes, sub-atomic particles, ions, balancing equations, energy levels, and periodicity.

Type of Session: Commercial Presentation
Target Audience: Middle School, High School
Core Focus: Chemistry, Physical Science
Conference Strand: SEPs & STEM/STEAM, Resources and Opportunities

8:00am-9:45am  Session 043

Max : 50

Still "Centered" on Science
Rebecca Howerin Robison - Charlotte-Mecklenburg Schools

Read-Alouds and Hands-On Activities to introduce and teach your science topics. Grades 2-5 Literacy & Science Integration. Make-and-take, door prizes, and directions for more than 50 hands-on science activities provided.

Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Elementary
Core Focus: General
Conference Strand: Disciplinary Literacy, Project and Problem-Based Learning, Integration

8:00am-9:45am  Session 015

Max : 50

Natural Selection is for the Birds
Victoria Kihan - Glynn Middle School

The Teacher Institute for Evolutionary Science provides teachers with a free unit of materials, including a standards-aligned presentation. We feature our signature, data-collecting activity, This Lab is for the Birds.

Type of Session: Presentation
Target Audience: Middle School
Core Focus: Biology/Life Science
Conference Strand: Disciplinary Literacy, SEPs & STEM/STEAM, Resources and Opportunities

8:00am-9:45am  Session 123

Max : 35

STREAMing with WILD in SC, Ltd. Co.
Nancy and Ray Thompson - WILD in SC, Ltd. Co.

WILD in SC presents hands-on EE curricula for PreK-12, formal, and non-formal educators use. These activities encourage students' interest, enabling responsible actions toward natural resources.

Type of Session: Presentation
Target Audience: General
Core Focus: General
Conference Strand: SEPs & STEM/STEAM, Resources and Opportunities, Project and Problem-Based Learning

8:00am-9:45am  Session 153

Max : 45

SC Green Steps Schools Initiative
Jane Hiller - Sonoco

Come learn how your K-12 school can take steps toward becoming more environmentally responsible by participating in the SC Green Step Schools Initiative www.greenstepschools.com Schools can receive annual awards by working with approved mentor(s) to establish easy, model-quality, sustainable projects where students learn, do and teach others about conserving, protecting and restoring natural resources.

Type of Session: Distance Learning
Target Audience: General
Core Focus: Environmental Science
Conference Strand: Resources and Opportunities

8:00am-8:45am  Session 060

Max : 100

TEChing it up a Notch: Low Cost Innovative Strategies for Integrating Technology Into Science
Tonya Davis - Noyce Master Teacher Fellows University of SC/Calhoun County Public Schools

This presentation will address various programs and platforms to integrate common technologies into teaching. We will review programs based on various operating systems/platforms (iOS, Android, Google Chrome) that can be used to provide enriched experiences for students without being costly. This is useful for teachers who have limited resources available.

Type of Session: Presentation
Target Audience: High School
Core Focus: Biology/Life Science, Chemistry, Earth/Space Science, Physical Science, General
Conference Strand: Technology Integration in Science

"Science in Action"
Friday General Sessions

8:00am-8:45am  
Session 081  
Max : 45

Design a Model-Based Inquiry Unit: Nuclear Chemistry Example  
Christine Lotter - University of South Carolina

In this session you will engage in hands-on activities from a model-based inquiry unit focused on nuclear chemistry. You will also learn the components of a model-based inquiry unit and be provided a planning tool to develop your own unit that engages students in creating and revising explanatory models.

Type of Session: Presentation  
Target Audience: Middle School, High School  
Core Focus: Chemistry, Physical Science, Environmental Science  
Conference Strand: SEPs & STEM/STEAM, Project and Problem-Based Learning, Model-Based Inquiry

8:00am-8:45am  
Session 070  
Max : 50

Creating an Inquiry-Based Learning Culture for Student Success with South Carolina EPSCoR  
Stan Hill - Wake Forest School of Medicine, April Heyward - South Carolina EPSCoR/IDEA Program

Discover an engaging Inquiry-Based Learning approach capable of transforming school districts by motivating students to achieve through instructional standards and PBL cases. Participants will experience a hands-on student inquiry.

Type of Session: Hands on Workshop (Non Ticketed)  
Target Audience: Early Elementary, Elementary, Middle School, High School, General  
Core Focus: General  
Conference Strand: Resources and Opportunities, Project and Problem-Based Learning

8:00am-8:45am  
Session 082  
Max : 50

Light, Color, Construction  
Susan Jenkinson - Springdale Elementary/Lex 2

Individually, students will test different materials to determine which materials best reflect, refract, and absorb light using a Gizmo simulator. Students will then determine, based on data, which materials/color of material would be the best to use on a building’s roof. Collaboratively, students will create and present their conclusions based on data gathered and a letter to the contractor persuading them to select a specific color for the new roof.

Type of Session: Presentation  
Target Audience: Elementary  
Core Focus: Physical Science  
Conference Strand: Project and Problem-Based Learning

8:00am-8:45am  
Session 083  
Max : 35

Energy Conservation in Early Childhood Education  
Christine Corbacho, Karen Jones - Cayce Elementary, Lex 2

An overview of a variety of hands-on activities that teachers can take back to their Early Childhood classrooms. Activities will support SEPs and SC science standards for energy conservation on the Early Childhood level.

Type of Session: Hands on Workshop (Non Ticketed)  
Target Audience: Early Elementary, General  
Core Focus: Earth/Space Science  
Conference Strand: Project and Problem-Based Learning

8:00am-8:45am  
Session 067  
Max : 50

The Great American Eclipse of 2017 - What Really Happened?  
Laurie Merlo, Thom O’Brien - ExploreLearning

Science & Literacy will support your understanding of why the total SOLAR eclipse was such a rare treat for SC. Learn how & when the next total LUNAR eclipse will occur!

Type of Session: Commercial Presentation  
Target Audience: General  
Core Focus: Earth and Space Science  
Conference Strand: Disciplinary Literacy, SEPs & STEM/STEAM, Resources and Opportunities

8:00am-8:45am  
Session 089  
Max : 50

Light and Sound - Investigating Energy and Collecting Data  
Ed Emmer - Richland School District Two

Participants will engage in model investigations to collect data, including using Apps, to construct explanations about light and sound energy.

Type of Session: Hands on Workshop (Non Ticketed)  
Target Audience: Elementary  
Core Focus: Physical Science  
Conference Strand: SEPs & STEM/STEAM

9:00am-9:45am  
Session 054  
Max : 50

SCESTA - Earth/Environmental Science Share a Thon  
John Wagner - Clemson University

SCESTA (SC Earth Science Teachers Association) and EEASC (Environmental Education Association of SC) members showcase exemplary standards-based activities in earth/environmental science suitable for a variety of grade levels.

Type of Session: Share a Thon  
Target Audience: Early Elementary, Elementary, Middle School, High School  
Core Focus: Earth/Space Science, Environmental Science, Marine Science  
Conference Strand: Resources and Opportunities, Project and Problem-Based Learning
Friday General Sessions

9:00am-9:45am  Session 096
Max : 50
Science Notebooking: Finding What Works
Rachel Miller - LearnEd Notebooks
Notebooking in science is a valuable tool for both teachers and students. Learn how to differentiate your lessons and promote organization with a unique system from LearnEd Notebooks.

Type of Session: Commercial Presentation
Target Audience: Middle School, High School
Core Focus: Biology/Life Science, General
Conference Strand: Resources and Opportunities

9:00am-9:45am  Session 108
Max : 50
How do we Know What We Know?
Sophia Waheed, Donna Petty - EL Wright Middle School
Move through stations with examples of ways to engage students to think and discuss how we know what we know in the 8th grade science curriculum.

Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Middle School
Core Focus: General, Middle School Focus
Conference Strand: Disciplinary Literacy, SEPs & STEM/STEAM

9:00am-9:45am  Session 109
Max : 35
Escape the School the STEM Way
Warren Wise - Kelly Mill Middle School
Participants will learn innovative ways to incorporate creative problem solving, entrepreneurial projects, use of VR goggles, storytelling through video and practical computer programming (coding) activities into their classroom. At the same time, they will participate in interdisciplinary hands-on STEM activities that are not only low budget but career oriented that are based around similar situations such as “Escape Rooms” and “Breakout Boxes”. These DIY STEM activities will help to reinforce and strengthen student learning.

Type of Session: Hands on Workshop (Non Ticketed)
Target Audience: Elementary, Middle School, High School
Core Focus: Biology/Life Science, Chemistry, Physical Science, Environmental Science, Engineering, Technology and Applications Science
Conference Strand: SEPs & STEM/STEAM

10:00am - 10:45am  Session 092
Max : 50
BioDiscover the Microscopic Marine World!
Karen Jackson - Clemson Extension/Carolina Clear, E.V. Bell - SC Sea Grant Consortium
It’s a small world! Discover the beauty of the microscopic marine world during this hands-on presentation! You will learn about the BioDiscovery Project – a new STEM initiative being piloted in South Carolina. Participants will learn how to design and deploy bio-collection discs, identify common marine and freshwater species, collaborate with schools across the state, nation, and world, and participate in a focus group on developing the program for South Carolina. Be part of this exciting, new project for South Carolina educators!

Type of Session: Presentation
Target Audience: Elementary, Middle School, High School
Core Focus: Biology/Life Science, Earth/Space Science, Environmental Science, Engineering, Technology and Applications Science, Marine Science
Conference Strand: Disciplinary Literacy

(SC)² Business Meeting
10:00am - 10:45am  Ballroom A
Join us for the (SC)² business meeting and awards ceremony.
Elections, Make-A-Wish and Door Prizes

Keynote Speaker
11:00am - 12:00pm  Ballroom A
Creating a Culture of Argumentation in Science Classrooms
Dr. Zipporah Miller - Anne Arundel County Public School System
Sponsored by: Pearson

When scientists communicate with one another, they explain what they think and use evidence to support why they think that way. Creating a culture of argumentation in science classrooms afford students opportunities to develop this skill. Students should be afforded opportunities formulate explanations based on evidence they collected, in an effort to defend their ideas, or challenge a classmates ideas. Balancing hands on and minds on experiences in science classrooms result in students’ increased understanding of science concepts.
Friday General Sessions

1:00pm-2:45pm   Session 008
Max : 100
Classroom Misbehavior - Action that Stifles Teaching/Learning
Peter Vajda - Center for Teacher Effectiveness
Learn “8:00 Monday morning” research-based strategies of a fair and simple classroom management system that will eliminate unwanted behaviors by 70% or more. Learn essential steps of teaching to expected behaviors and discover the benefits and the importance of positive interactions with your students.
Type of Session: Presentation
Target Audience: Elementary, Middle School, High School
Core Focus: General
Conference Strand: Classroom Management

1:00pm-2:45pm   Session 081
Max : 50
Genetics: Crazy Traits and CPO’s Link Learning Module
Erik Benton - CPO Science/Frey Scientific
CPO’s Crazy Traits Link learning module uses STEM and NGSS strategies in a real-time tablet based learning environment to learn genetics. Concepts like traits, alleles, phenotypes, genotypes, and heredity will come alive as you create crazy creatures with a unique kit and study probability, adaptation, dominance, and recession.
Type of Session: Presentation
Target Audience: Middle School, High School
Core Focus: Biology/Life Science
Conference Strand: SEPs & STEM/Steam, Resources and Opportunities

1:00pm-2:45pm   Session 091
Max : 50
GIZMO’s: Putting the SEP’s in Action
Serena Cox - Dr. Phinnize J. Fisher Middle School
Presentation will focus on effective teaching strategies and approaches using GIZMOS to support the science and engineering practices while providing instructional opportunities for students to build the capacity to pose and evaluate arguments based on evidence and to apply conclusions from such arguments appropriately. Hands-on activities!
Participants will need to bring their own device - laptops recommended.
Type of Session: Hands on Workshop (Non Ticketed)

1:00pm-1:45pm   Session 028
Max : 50
Making Plarn...Problem Based Learning Leads to Social Action
Emily Perkins, Shirley Cope - Dutch Fork Elementary Academy of Environmental Sciences
Plastic bags are harmful to the environment but can be put to good use for those in need. Plastic bags can be cut and then tied into “plarn”. From that, the “plarn” can be crocheted into bedrolls and given to the homeless.
Type of Session: Presentation
Target Audience: Elementary, Middle School, High School
Core Focus: Environmental Science
Conference Strand: Project and Problem Based Learning

1:00pm-1:45pm   Session 092
Max : 45
Creative Chemistry
Bridget Kinard - Bamberg-Ehrhardt High School
Do you want to add some new activities, teaching strategies, and assessments to your classroom? This session will cover several topics in chemistry that are covered in middle and high school. Handouts will be available.
Type of Session: Presentation
Target Audience: Middle School, High School
Core Focus: Chemistry
Conference Strand: SEPs & STEM/Steam, Resources and Opportunities, Assessment that Informs Instruction, Project and Problem-Based Learning

1:00pm-1:45pm   Session 041
Max : 35
What if Your Classroom Assessments Looked Like SCPASS-Science
Kimberly Massey - Rock Hill Schools
If only your classroom assessments closely resembled SCPASS-Science! This session will show how to write test items that are like those students will experience on SCPASS-Science. Your students will be more prepared and will score very well!
Type of Session: Presentation
Target Audience: Elementary, Middle School, High School
Core Focus: General
Conference Strand: Assessment That Informs Instruction
### Friday General Sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Details</th>
</tr>
</thead>
</table>
| 1:00pm-1:45pm | Session 095 | Max: 50  
Waves  
Linda Culpepper - Lab-Aids  
Exploring the relationship between visible light frequency and energy through the use of phosphorescent materials, and use light boxes to explore reflection and refraction.  
Type of Session: Hands on Workshop (Non Ticketed), Commercial Presentation  
Target Audience: Middle School  
Core Focus: Physical Science  
Conference Strand: Project and Problem-Based Learning |
| 2:00pm-3:45pm | Session 098 | Max: 50  
Evolution of a Classic Laboratory Exercise: Adapting an Engaging Learning Experience to the SEPs  
David Degenhardt - Ridge View High School, Marriah Schwalier - University of South Carolina  
Have you reflected on an activity and said, “The students had fun, but did they make connections?” Participants will engage in a revamped natural selection laboratory that incorporates the SEPs.  
Type of Session: Hands on Workshop (Non Ticketed)  
Target Audience: High School  
Core Focus: Biology/Life Science  
Conference Strand: SEPs & STEM/STEAM |
| 2:00pm-3:45pm | Session 045 | Max: 45  
How Can Teachers Use NASA On-line Resources to Teach STEM/STEAM Concepts?  
Dr. Edward P Donovan - USC Upstate, Sharon L. Donovan - Roper Mountain Science Center  
Teachers will be introduced to NASA On-line STEM/STEAM classroom teaching resources with an emphasis placed on NASA's missions to explore our Moon, Mars, Mars' moons, asteroids, and our solar system.  
Type of Session: Presentation  
Target Audience: General  
Core Focus: Earth/Space Science, Physical Science, Engineering, Technology and Applications Science  
Conference Strand: SEPs & STEM/STEAM, Resources and Opportunities, Project and Problem-Based Learning |
| 2:00pm-3:45pm | Session 019 | Max: 95  
DIVE-in to Engineering and the Engineering Process  
Suzan Morris, Becky Gibson - STEMscopes  
In this interactive, engaging, and hands-on session, the DIVE Process is investigated while collaboration and consensus are challenged. Facilitation techniques are modeled. We will build, figure out the process through consensus, and walk away with new maker ideas for the STEM Science Classroom!  
Type of Session: Hands on Workshop (Non Ticketed), Commercial Presentation  
Target Audience: Elementary, Middle School  
Core Focus: Physical Science, Engineering, Technology and Applications Science, General  
Conference Strand: SEPs & STEM/STEAM |
| 2:00pm-3:45pm | Session 087 | Max: 35  
Integration of Math and Science through the use of the Learning Cycle  
Brenda Hawks - Forestbrook Middle School/Horry County Schools, Mary Massey - Conway Middle School, Horry County Schools  
Engage, explore, develop concepts and apply learning with air pressure, air resistance, and math standards. Attendees receive: 2 PowerPoints and 14+ ready to use math activities.  
Type of Session: Hands on Workshop (Non Ticketed)  
Target Audience: Middle School  
Core Focus: Physical Science, Engineering, Technology and Applications Science  
Conference Strand: SEPs & STEM/STEAM, Project and Problem-Based Learning |

---

"Science in Action"
### Friday General Sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Max</th>
<th>Presenters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00pm-2:45pm</td>
<td>Session 057</td>
<td>Shark Tank Space Mission</td>
<td>45</td>
<td>Garrick Ball - Batesburg-Leesville Middle School</td>
<td>This is a PBL that involves students researching space exploration technology and designing a space mission. Students then pitch their proposal to their classmates and allocate a designated amount of funds to their favorite proposals. Finally, the student groups that receive the most funding, propose their ideas to a select panel of community members, in a “Shark Tank” scenario.</td>
</tr>
</tbody>
</table>
|               |           |                                                                      |     |                                                                            | Type of Session: Presentation  
Target Audience: Middle School  
Core Focus: Earth/Space Science  
Conference Strand: Project and Problem-Based Learning                                                                                     |
| 2:00pm-2:45pm | Session 049 | Tools to Develop World Class Skills                                  | 50  | Leslie High-Washington, Shawna Moore - Ridge View High School              | This session is designed to share ideas and resources to transform instruction and learning in a 1:1 science classroom addressing world class skills needed for the Profile of a SC Graduate.  
Type of Session: Share a Thon  
Target Audience: Elementary, Middle School, High School  
Core Focus: Biology/Life Science, Chemistry, Earth/Space Science, Physical Science, Environmental Science, Marine Science  
Conference Strand: Resources and Opportunities, Blended Learning                                                                 |
| 2:00pm-2:45pm | Session 126 | Up-Cycle Projects: Using STEAM and the Design Process to Engage Students and Reduce Landfill Waste | 45  | Teresa Randolph, Kelley Hill - Dutch Fork Elementary School-Academy of Environmental Sciences | Learn how we engage students in creating innovative up-cycled products to reduce landfill waste and raise money. Authentic use of literacy and STEAM culminate into something to be proud of.  
Type of Session: Hands on Workshop (Non Ticketed)  
Target Audience: Elementary  
Core Focus: Environmental Science  
Conference Strand: SEPs & STEM/STEAM                                                                 |
| 2:00pm-2:45pm | Session 132 | Energize Your Class                                                   | 50  | Courtney Epting, Gina Varat - The Electric Cooperatives of SC             | This session will explore lesson plans, activities, and contests that are focused on energy and the classroom. Come discover free teacher resources to energize your career and content!  
Type of Session: Presentation  
Target Audience: Early Elementary, Elementary, Middle School, High School  
Core Focus: Earth/Space Science, Physical Science, Environmental Science, Engineering, Technology and Applications Science  
Conference Strand: Disciplinary Literacy, SEPs & STEM/STEAM, Resources and Opportunities                                                                 |
| 2:00pm-2:45pm | Session 079 | Grant Writing Made Easy                                               | 50  | Willette Jenkins - Hunter-Kinard-Tyler                                   | Do you have great ideas but limited funds? Writing a grant may be the solution and it is a lot easier than you think! We often look at grant writing as a tedious process but there are numerous funding opportunities that are available with minimal requirements.  
Type of Session: Share a Thon  
Target Audience: General  
Core Focus: General  
Conference Strand: Grant Writing                                                                 |
| 2:00pm-2:45pm | Session 117 | Retooling an Old Game                                                 | 50  | Nate Carnes - University of South Carolina                               | Learn how we engage students in creating innovative up-cycled products to reduce landfill waste and raise money. Authentic use of literacy and STEAM culminate into something to be proud of.  
Type of Session: Hands on Workshop (Non Ticketed)  
Target Audience: Elementary  
Core Focus: Environmental Science  
Conference Strand: SEPs & STEM/STEAM                                                                 |
| 2:00pm-2:45pm | Session 107 | I'm Teaching Physics...Now What?                                      | 35  | Bridget Kinard - Bamberg Ehrhardt High School                            | If you are looking for new ideas to use when covering physics topics in your classroom this session is for you. Turn your physics lessons into competitions and your students into engineers! Handouts will be available for all activities.  
Type of Session: Presentation  
Target Audience: Middle School, High School  
Core Focus: Physical Science, Engineering, Technology and Applications Science, Physics  
Conference Strand: SEPs & STEM/STEAM, Resources and Opportunities, Project and Problem-Based Learning |