

Science and the Natural World

Celebrating North Carolina's Resilient Educators

NCSTA 2022 Professional Development Institute

Benton Convention Center
Winston-Salem, NC
Nov. 3 - 4, 2022

Thank you



to
Burroughs Wellcome Fund
for providing your
Continued Support

and to
NASA/NC Space Grant
for providing us with
bags



and to
WorldStrides
for providing us with
Lanyards

and to all of our participants, vendors and board members for making
NCSTA and the 2022 PDI great!

NCSTA PRESIDENT

MaryKate Holden



I am so pleased to welcome you IN PERSON to the 2022 NCSTA Professional Development Institute. The theme of Celebrating North Carolina's Resilient Educators has never been more appropriate. We have bounced back from budget cuts, COVID, low retention rates, and the changing student landscape. We are strong and resilient!

The NCSTA, and especially the PDI, have meant a great deal to me over the years. I have made wonderful connections, amazing and talented friends, and have grown in the profession immeasurably. I have added new perspectives to old material, shared my own lessons, and added new ones to my repertoire. I have stretched my mind and my heart and shared with my students the new wonders I have discovered.

One of the highlights of any PDI is the Vendor Exhibit Hall. I always find so many resources and ideas when I visit the vendors. They are here to make sure you have everything you need to excite the flame of science in our students. Please be sure to interact with our vendors. Reach out to them and ask what they can do for you. They are here to partner with us to continue to improve science education across our state.

I hope, no, I KNOW you will find the same joy and re-energizing that I have found in attending this year's PDI. We are so glad you are here and are willing to share your time and talents with all of us. You are the reason we come together and share. You are the resilient educators we celebrate and support with all we do as an organization. We are grateful for the chance to offer this PDI and to meet you in-person.

General Schedule

WEDNESDAY

5:30-7:45 pm Registration/Check-in

THURSDAY

7:30 am Registration/Check-in

8:00 am Exhibits Hall Opens - Salem Ballroom 2

8:30 am - 9:20 am Concurrent Sessions

**9:30 am -10:20 am Concurrent Sessions
Earth/Environmental Sciences Share-A-Thon -
Winston Ballroom 2**

**10:30 am-12:00 pm General Session - Winston Ballroom 2
Keynote Speaker Luke Dollar**

**12:00-1:30 pm LUNCH and Exhibit Hall Activities (Spin-A-Wheel) -
Salem Ballroom 2
Reality Check for Pre-Service Teachers - Winston 3C**

1:30 pm - 2:20 pm Concurrent Sessions

2:30 pm - 3:20 pm Concurrent Sessions

**3:30 pm - 4:20 pm Concurrent Sessions
Elementary Share-A-Thon/ Middle School Share-A-Thon
Winston Ballroom 2**

**4:30 pm - 5:15 pm Exhibit Hall Extravaganza
Spin-A-Wheel - Salem Ballroom 2**

5:30 pm -6:15 pm Reception Honoring Awardees - Winston Ballroom 2

**6:15 pm -7:30 pm Award Ceremony – Prize Giveaway
Grant-A-Wish winners announced
Winston Ballroom 2**

FRIDAY

7:30 am	Registration/Check-in
8:00 am	Exhibits Hall Opens - Salem Ballroom 2
8:30 am -9:20 am	Concurrent Sessions Life/Biological Sciences & Chemistry/Physics Share-a-Thons - Winston Ballroom 2
9:30 am -10:20 am	Concurrent Sessions
10:30 am -11:20 am	Concurrent Sessions
11:30 am -12:20 pm	Concurrent Sessions
12:20 pm – 1:20 pm	Lunch
1:20 pm – 1:30 pm	Spin-A-Wheel - Foyer
1:40 pm – 2:30 pm	Concurrent Sessions
2:00 pm	Exhibits Close
2:40 pm – 3:30 pm	Concurrent Sessions
3:30 pm	Prize Giveaway - Foyer



Luke Dollar is a National Geographic Explorer and a wildlife biologist with more than 25 years' experience coordinating conservation, research, educational, and development programs. Dollar's scientific research focuses on carnivores ranging from big cats to Madagascar's largest carnivore, the fosa (*Cryptoprocta ferox*), and their ecology, habitat, and conservation threats. More than 50 percent of his overall efforts are concentrated on grassroots education and sustainable employment programs for local people sharing space with Africa's predators. Dollar's efforts have not only yielded a trove of data on carnivore biology and behavior, but his programs have led to the development of scholastic and sustainable business programs benefiting thousands of local subsistence farmers and their children. He served as Program Director of National Geographic's Big Cats Initiative from 2009 to 2017 and is currently Professor and Chair for the Department of Environment and Sustainability at Catawba College, Adjunct Professor for the Nicholas School at Duke University, and President of Friends of Madagascar, a conservation education NGO building and supporting rural schools throughout Madagascar.

Keynote Speaker

Dr. Luke Dollar

National Geographic Explorer and Wildlife Biologist

**Thursday, 10:30
Winston Ballroom 2**

General Information

REGISTRATION INFORMATION

The registration area is located at the far end of the main level of the Benton Convention Center.

All participants should check in at the registration desk. On-site registration is available. Observe posted signs to avoid delays.

Pick up your name tag at registration check-in and wear it at all times.

The registration area will be open:

Wednesday, Nov. 2 6:00 p.m. - 7:45 p.m.

Thursday, Nov. 3 7:30 a.m. - 3:30 p.m.

Friday, Nov. 4 7:30 a.m. - Noon

PRESENTER CHECK-IN

Presenters must check in 45 minutes prior to scheduled sessions. A failed check-in will result in your session being replaced with an alternate session.

The presenter check-in area is adjacent to the registration check-in area at the far end of the main level of the Benton Convention Center.

We extend a special thanks to all of our presenters. You are crucial to our success. Be sure to use your complimentary drink coupon at our reception. The free drink is a small token of our gratitude for your time.

For assistance, call Manley at 919-218-7917

EXHIBIT AREA

Visit our Exhibit Area located in the Salem Ballroom to see the latest from our 2022 vendors.

Exhibit Hours:

Thursday 8:00 a.m. - 6:00 p.m.

Friday 8:00 a.m. - 2:00 p.m.

Join us during your lunch-exhibit hall break for prize giveaways with our Spin-a-Wheel.

CEU CREDIT

A form is included in this program for you to fill out and submit to your LEA. You will receive 0.1 credit hour for each session that you attend. For more information, contact your LEA.

PRE-SERVICE EDUCATORS

The REALITY CHECK is designed exclusively for university students majoring in education, pre-service educators, student teachers and their advisors. Join us for the opportunity to talk with accomplished teachers and share experiences with your peers in an informal setting. A light lunch will be served and there will be time for visiting the exhibit hall. Check the schedule for time and place.

SPIN-A-WHEEL & PRIZE GIVEAWAYS

Check the schedule for times and places for your chance to win door prizes from our vendors at our SPIN-A-WHEEL. We will also have a drawing for prizes at the Awards Ceremony. Check your bags for a ticket and receive tickets for participation during the conference.

SCHED

To access SCHED on you phone or tablet:

1. Download and install the SCHED app. You may create a free account. If you create an account, you can add sessions to your personal schedule.
2. Search for 'NCSTA PDI 2022' and our event should appear.
3. Tap on any listing for more details. Explore the screen for filter options and the strand information guide. If you creat an account, you can add sessions to your personal schedule.

Attendees - for more information on how to use SCHED:
<https://sched.com/support/section/guide-for-attendees/>

Presenters - for more information on how to use SCHED:
<https://sched.com/support/section/speaker-tools/>

PARKING REIMBURSEMENT

NCSTA will pay your parking for your Thursday and Friday attendance at the PDI. There is a Parking Reimbursement form included in this program or you can use the [fillable form here](#). Please download and fill out the form, put your name on your parking receipt(s), and either mail or email to us. Instructions are on the form. You will receive a check in the mail after the conference.

NCSTA Districts



DISTRICT 1 serves Hertford, Gates, Perquimans, Pasquotank, Currituck, Camden, Bertie, Pitt, Martin, Beaufort, Hyde, Washington, Dare, Tyrell, and Chowan counties.

Your district director is JENNIFER STALLS.



DISTRICT 2 serves Sampson, Wayne, Greene, Lenoir, Craven, Pamlico, Jones, Onslow, Duplin, Carteret, Pender, New Hanover, and Brunswick counties.

Your district director is MICHELLE HAFEY.



DISTRICT 3 serves Durham, Granville, Wake, Vance, Warren, Johnston, Wilson, Nash, Edgecombe, Halifax, Franklin, and Northampton counties.

Your district director is KRISTANA ROGERS.



DISTRICT 4 serves Moore, Lee, Harnett, Cumberland, Hoke, Bladen, Columbus, Montgomery, Scotland, Richmond, and Robeson counties.

Your district director is KELLY FICKLIN.



DISTRICT 5 serves Stokes, Forsyth, Davidson, Rockingham, Guilford, Randolph, Caswell, Person, Orange, Alamance, and Chatham counties.

Your district director is **BRAD RHEW**.



DISTRICT 6 serves Cleveland, Lincoln, Gaston, Mecklenburg, Rowan, Cabarrus, Stanly, Union, and Anson counties.

Your district director is **CARIE FUGLE**.



DISTRICT 7 serves Avery, Burke, Caldwell, Watauga, Ashe, Catawba, Alleghany, Wilkes, Surry, Yadkin, Iredell, Alexander, and Davie counties.

Your district director is **LINDSAY SMITH**.



DISTRICT 8 serves Cherokee, Graham, Clay, Swain, Macon, Haywood, Jackson, Transylvania, Madison, Buncombe, Henderson, Yancey, Mitchell, McDowell, Polk, and Rutherford counties.

Your district director is **TOM SAVAGE**.



NCSTA Leadership

Executive Committee

President – MaryKate Holden
President-Elect – Cliff Hudson
Past President – Sandra Weitzel
Secretary – Brad Woodard
Treasurer – Mary Ellen Durham

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District 1 – Jennifer Stalls
District 2 – Michelle Hafey
District 3 – Kristana Rogers
District 4 – Kelly Ficklin
District 5 – Brad Rhew
District 6 – Carie Fugle
District 7 – Lindsay Smith
District 8 – Tom Savage

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Goals – Manley Midgett
Membership – Mike Tally
Finance – Mary Ellen Durham
Nominations/Elections – Krista Brinckek
Communications – Brian Whitson
Conference – Sandra Weitzel
Constitution & By-Laws – Carol Maidon

Ad-Hoc Committees

Awards – Teresa Cowan
Grants – Carrie Jones
PDI Sponsorships – Manley Midgett
Preservice Teachers & Univ. Liaison – Laura Lowder
Trust Fund – Manley Midgett
History & Records – Brad Woodard
NSTA Liaison – Carrie Jones
DPI Liaison – Gavin Fradel
Non-Public Schools – Adrienne Evans
Nontraditional/Nonformal Education – Lisa Tolley
Legislative – Ralston James
Student Competitions – Jennifer Crawford
Science Matters Liaison – Carolyn Elliott
Diversity and Equity – Tomika Altman
Communications – Brian Whitson
Business Manager - Joette Midgett
Conference Coordinators - Manley & Joette Midgett



SPIN-A-WHEEL

Join us for your chance to win door prizes with our Spin - a - Wheel.

Check your bag for your ticket. Get a ticket at the General Session with our keynote speaker DR. LUKE DOLLAR.

Thursday

12:00 - 1:30 - Exhibit Hall

4:30 - 5:15 - Exhibit Hall

Friday

1:20 - 1:30 - Lobby

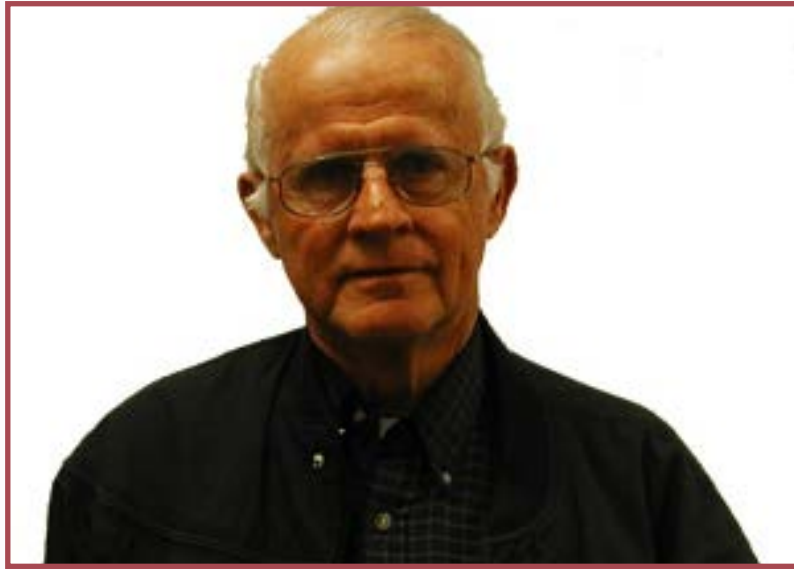
NC PROJECT LEARNING TREE

BOOTH 110

PLT's New Flagship Curriculum is Here!

Come visit us in the exhibit hall at NCSTA to explore all our PreK-12 resources.

Paul H. Taylor Trust Fund



NCSTA set aside a reserve account for emergency use whenever extraordinary circumstances warrant. (Did anyone say 'Pandemic'?) Thankfully this fund is intact today, and we will be able to provide quality programs for science educators for years to come.

For the many years of service Paul Taylor devoted to NCSTA, the NCSTA Board of Directors voted to rename the NCSTA Trust Fund in his honor. The name 'NCSTA Trust Fund' has been replaced with the "Paul H. Taylor Trust Fund".

Paul Taylor was one of the founders of NCSTA. Paul's dedication and persistence led to the formation of the organization in 1969. He led the science section of the North Carolina Department of Public Instruction for many years until he retired in 1994. He was on the committee that set-up the North Carolina Science Fair at the state level and in all eight districts across the state. Paul was also instrumental in helping to make other student science competitions successful. He served on the NCSTA Board for over 15 years and during that time started the NCSTA Trust Fund and managed it until 2009. Paul believed so strongly in participating at the annual conference that he attended 39 conferences consecutively before retiring from NCSTA in 2009. Paul died in 2018 at the age of 88. We were blessed with many years of his service to science education in North Carolina.

Contribute to the Paul H. Taylor Trust Fund

at

[https://checkout.square.site/merchant/1AYSMPRA4AKAE/
checkout/6AL47TFHVJFD6UEI6POZN0FZ](https://checkout.square.site/merchant/1AYSMPRA4AKAE/checkout/6AL47TFHVJFD6UEI6POZN0FZ)

PLATINUM DONORS - \$1000 or more

Fred Byer
Renee Coward
Carrie Jones
Barbara Leonard
Paul Taylor
Chuck Vizzini
Burroughs Wellcome Fund

GOLD DONORS - \$500 - \$999

Mark Case
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Mary Ellen Durham
Carolyn Elliott
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SILVER DONORS - \$250 - \$499

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Teresa Cowan
Tammy Lee
Floyd Matheis
Manley Midgett
Patricia Shane
Brad Woodard

COPPER DONORS - \$100 - \$249

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STRANDS

1. Meeting the Needs of our Diverse Learners

Resilient science educators know preparing scientifically literate citizens is challenging. They must address the diversity and cultural sensitivity needs of the students and be prepared to teach students with a variety of cognitive levels in an inclusive classroom. They must also address their student's social and emotional learning needs and include English language learners in their science lessons. Inquiry-based, hands-on learning lessons that create a culturally responsive, inclusive classroom significantly enhance student performance. Students who use the tools of science and see representation of someone like themselves in various science and technology careers have an expanded view of their science ability and science identity.

Science can be taught using a variety of instructional strategies that incorporate differentiation as students' science skills are enhanced. Educators are invited to share lessons addressing the forementioned strategies that meet the variety of students' needs in today's classrooms.

2. Taking Science Learning Beyond the Classroom

Resilient educators engage students beyond the classroom in school yard labs, outdoor learning spaces, forests, parks, neighborhoods, and walking field trips as they create exciting science lessons that allow students to experience authentic research and develop critical thinking skills. Through citizen science projects, problem-based learning, observations, and the use of scientific databases, educators can take a research and inquiry approach in showing not only how the natural world functions but also the impact of humans on the environment. Students can examine phenomena such as climate change, natural selection, coastal changes, environmental stewardship, adapting to the environment, evolution and more. They can be introduced to both traditional and nontraditional fields in science, technology, and engineering. These activities can also include current societal problems such as the Covid-19 pandemic. With these active learning strategies, students derive positive mental health benefits, better behavior, improve social interactions, intensify positive environmental attitudes, increase scientific content knowledge, and enhance academic performance. Educators are invited to share their strategies and lessons that take students beyond the classroom's four walls.

3. Digital Teaching Tools, Technology, Inquiry/Hands-on Learning and Assessment

Resilient educators use a variety of lessons that incorporate digital tools, inquiry, technology, and hands-on activities whether in the life, earth, environmental or physical sciences. These lessons require alternative ways to assess knowledge and process skills. Assessment is a more accurate indicator of the student's comprehension when the principles that link the concepts are measured. Of course, there is formative and summative assessment, but the educator must determine the best form of authentic assessment for any specific lesson whether for the individual or whole class. This may include portfolios or performance-based assessments, such as doing investigations, designing investigations, and interpreting and using data. Educators are invited to share their digital, technology, and/or inquiry/hands-on lessons in their subject area with the accompanying assessment.

EASTERN 4-H CENTER

BOOTH 209



This certificate is presented to

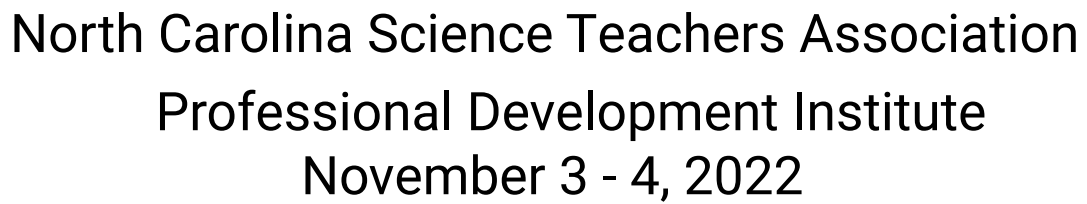
in recognition of attendance at the



2022 Professional Development Institute

*MaryKate Holden
NCSTA President*

*Winston-Salem, NC
November 3-4, 2022*



Date	Session Title	Presenter Name	Time	Hours
			Total Hours	

AWARDS

Outstanding Student Teacher in Science Award

Outstanding Student Teacher in Science Awards are presented to recognize undergraduate teacher education students seeking certification from a North Carolina college or university who have demonstrated outstanding ability as well as promise in the teaching of science during the student teaching process. The nominees must have completed student teaching within a year before the award presentation at the annual conference.

District Outstanding Science Teacher Awards

These Awards are presented to recognize excellence in science teaching in North Carolina, to teachers who exemplify excellent, creative, innovative teaching of science. The award is open to teachers at the elementary, middle and high school grade levels. The winners will receive an award and one year's membership in NCSTA.

Distinguished Service in Science Education in North Carolina Awards

Distinguished Service in Science Education Awards are presented to recognize excellence of contributions to science education in North Carolina. They recognize service to science education in the individual's school, school system, NCSTA district and at the state level. Contributions in seven categories are recognized:

Elementary	Administrative/Supervisor
Middle/Junior High	Non-school Setting
Senior High	Commercial
College/University	

Vi Hunsucker Award

This award recognizes an outstanding science educator who has gone above and beyond the call of duty to serve the students and teachers of North Carolina.

Visit <https://www.ncsta.org/past-award-winners/> for a list of past award winners.

GRANTS

Study Grant

NCSTA members who are taking classes, attending conferences, or participating in workshops are eligible for one study grant. If selected and approved, NCSTA will pay up to one half of your expenses, not to exceed the amount approved by the NCSTA board each year,. Graduate courses for the purpose of obtaining a degree are not acceptable. If awarded the grant, you must submit a two-page summary about the study in an article in The Reflector and present at the annual conference.

The application and more information can be found online at www.ncsta.org. The deadlines for submitting your request are March 1 and September 1.

Innovative Curriculum Support Grant

NCSTA members may apply for funds for supplies, materials, equipment, printing, travel and other expenses related to an innovative curriculum project involving students in a unique way. These funds are not intended for student travel such as field trips or for the personal gain of the Project Director. A committee will select recipients based on: innovativeness, establishment of need, realistic plan of action, ability to replicate, and the number of persons benefited. If awarded the grant, you must submit a two-page summary of the project , an article in The Reflector and a presentation at the annual conference.

The application and more information can be found online at www.ncsta.org. The deadlines for submitting your request are March 1 and September 1.

Please fill out all fields. We will reimburse your parking for Thursday and/or Friday, only one receipt per day. Write your name on your parking fee receipt(s). Scan or take a picture of your receipt(s). Email form and receipts to ncstabusinessmanager@mindspring.com

Name

Street Address

Street Address 2

City, State, Zip Code

E-mail Address

Total Amount Requested

Save this page OR use this [fillable form](#)

Parking Reimbursement Form

Exhibit Hall Hours

Thurs 8 am - 5:15 pm

Fri 8 am - 2 pm



North Carolina
School of Science
and Mathematics

Summer Accelerator

Through the Summer Accelerator program, NCSSM offers exciting courses to a global audience of talented students. NCSSM has 40 years of experience providing highly innovative courses and opportunities.

Find out which program is right for you!



Early Accelerator
Rising 5th & 6th graders
IN-PERSON

Through interactive and hands-on activities, students will embark on a series of STEM adventures. Offered as an in-person day program.



Accelerator
Rising 7th-9th graders
IN-PERSON OR ONLINE

Students are introduced to exciting STEM topics at an age critical for engaging and encouraging their interests. Offered as two weeks online or one week residential.



Accelerator
Rising 10th-12th graders
ONLINE AND IN-PERSON (OPT)

Students learn together in academically rigorous residential or online programs. Options include: weeklong residential program beginning with two weeks of online learning or three-week online courses.

Scholarships, financial aid
and discounts available!

**"...not only a fun learning experience but
also a great way to learn a new subject,
meet with other like-minded students,
and prepare for the future."**

— 2020 Summer Accelerator student

LEARN MORE: ncssm.edu/accelerator

[@summeraccelerator](https://www.facebook.com/summeraccelerator) [@accel_ncssm](https://www.instagram.com/accel_ncssm) [@accel_ncssm](https://www.twitter.com/accel_ncssm)

NCSSM SUMMER ACCELERATOR

BOOTH 306

PRIZE GIVEAWAY - JOIN US AT THE AWARDS CEREMONY, THURSDAY AT 6:15 FOR A CHANCE TO WIN PRIZES.

WIN \$100 AMAZON GIFT CARD. GRAND DRAWING AT 3:30 ON FRIDAY.



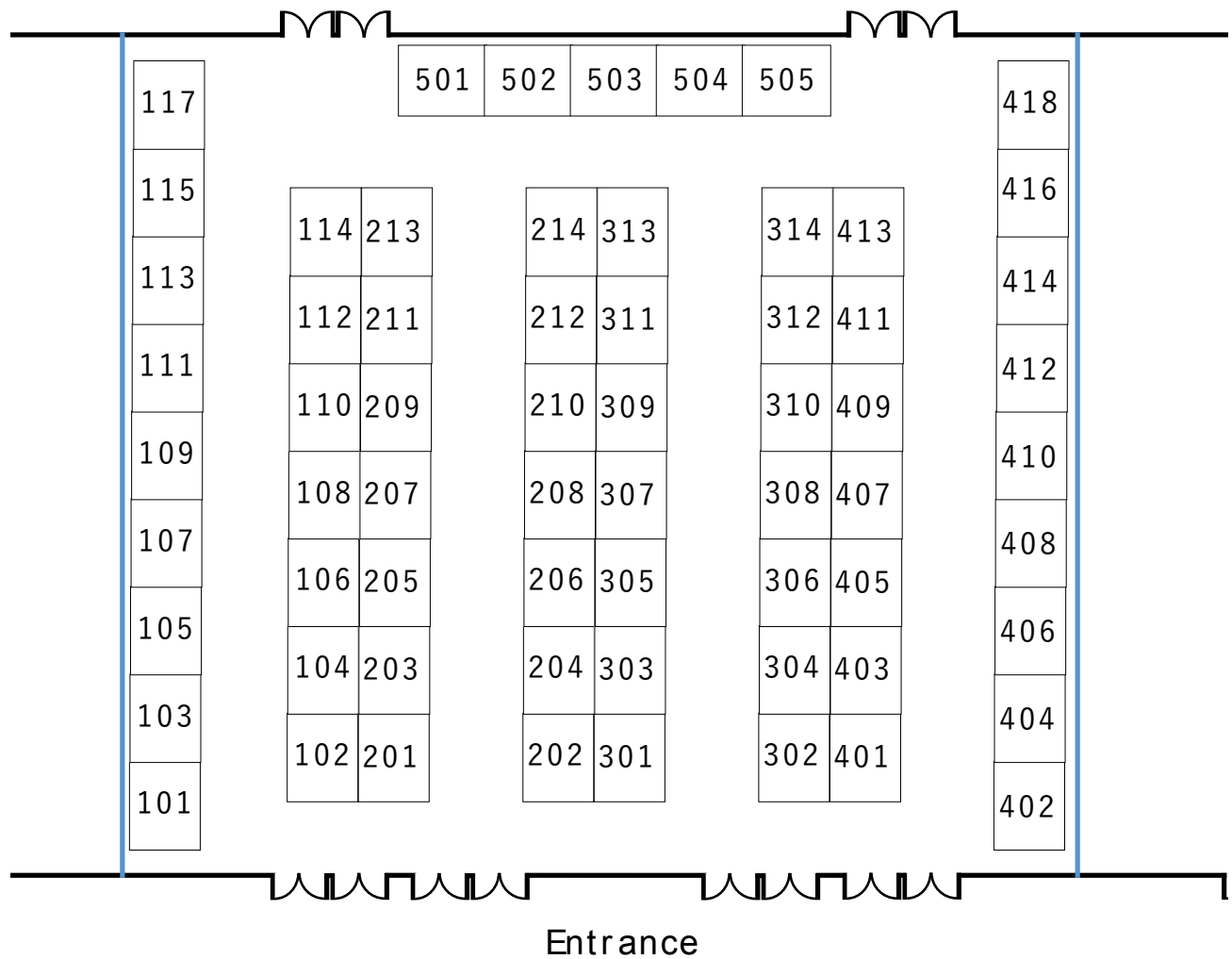


\$25 AMAZON GIFT CARD
 \$100 AMAZON GIFT CARD
 CORDLESS HOT GLUE GUN
 CHEMISTRY MOLECULAR MODEL KIT
 USB LAVALIER MICROPHONE
 RING LIGHT
 MAGNET MANIA KIT
 COOLER BACKPACK
 ELECTRONIC ORGANIZER
 OUTDOOR GIANT YARD TOSS GAME
 LAPTOP STAND



EXHIBITOR	BOOTH	EXHIBITOR	BOOTH
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Exhibitor Hall



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NCSTA PDI 2022

☐ **C** Commercial ☐ **D** Digital Teaching Tools ☐ **M** Meeting the Needs of our Diverse Learners ☐ **O** Other

☐ **T** Taking Science Learning Beyond the Classroom

NOVEMBER 2 • WEDNESDAY

5:30pm – 7:45pm

Registration/Check-in

Salem Foyer

Registration area is at the far end of the Benton Foyer, across from the Salem Ballroom. Pick up your name tag or register onsite. Presenters will also check in at the registration desk. Signs are posted to facilitate check-in.

C Commercial
 D Digital Teaching Tools
 M Meeting the Needs of our Diverse Learners
 O Other

T Taking Science Learning Beyond the Classroom

NOVEMBER 3 • THURSDAY

PINNED			
7:30am – 3:15pm		Registration/Check-in	Salem Foyer
		Registration area is at the far end of the Benton Foyer, across from the Salem Ballroom. Pick up your name tag or register onsite. Presenters will also check in at the registration desk. Signs are posted to facilitate check-in.	
8:00am – 5:15pm		Exhibit Hall Open	Salem Ballroom 2
8:30am – 9:20am	C	ACCESS UNLOCKED: Level Up Your Science/STEM Program with Game Based Learning <i>Lead Presenter: Rose Roberts</i> Join us for a hands-on epic adventure with Plasma Games. This session will provide you access to our platform which includes a one-of-a-kind video game, STEM career spotlights, a teacher portal full of curriculum resources, and free professional development.	Salem 1B
8:30am – 9:20am	C	BrainPOP Science: Your Ticket To Three-Dimensional Science Instruction <i>Lead Presenter: Kelsie Stocz</i> <i>Presenters: BrainPOP</i> Trying to shift your classroom instructional practices toward three-dimensional teaching and learning? BrainPOP Science is here to help. This brand new resource incorporates phenomena, inquiry, and the CER model in the form of student led investigations.	Winston 1A
8:30am – 9:20am	C	Hands-on Plus! Driving Student-Centered Learning with Smithsonian Science for the Classroom K-5 <i>Lead Presenter: Hoover Herrera</i> How does hands-on learning incorporate digital and print resources to promote active learning? See how Smithsonian Science for the Classroom engages students with science and engineering practices and promotes scientific literacy for all students. Leave with classroom resources. <ol style="list-style-type: none"> 1. Experience a model lesson from Smithsonian Science for the Classroom 2. Learn how to effectively integrate hands-on, print, and digital resources 3. Strategies for putting student ideas front and center 	Salem 1A
8:30am – 9:20am	D	Exploring Geohazards in your Community through GIS <i>Lead Presenter: Tom Savage</i> Have you ever struggled incorporating geohazards into your curriculum? You will explore how to use your local/county GIS system and have students explore and search for geohazards such as flood plains, erosion and other hazards in their neighborhood.	Winston 3A
8:30am – 9:20am	D	Investigating the Impact of E-cigarettes on the Respiratory System <i>Lead Presenter: Dana Haine</i> Learn about a digital interactive notebook and wet-lab simulation that enables students to analyze data from toxicological studies assessing the impact of e-cigarette use on select protein biomarkers associated with the respiratory immune system.	Salem 1C
8:30am – 9:20am	D	Keeping Water Renewable <i>Lead Presenter: Paula Edelson</i> <i>Presenters: Beth Harris, Frank Graff</i> What makes water renewable, and how can we keep it that way? PBS NC's new blended lesson combines hands-on projects and interactive components that together, inspire middle school students to search for solutions, and to act on them.	Winston 3B

8:30am – 9:20am	M	Changing Classroom Ecosystems - Level Up in Math and Science Courses <i>Lead Presenter: Valerie Sellars</i> <i>Presenters: Dorie Hall, Alina Castillo, Lucas Paulsen</i> Attendees walk in the footsteps of DAV, a high school student, as she is introduced to an educational experience designed to challenge her and her teachers' self-efficacy. Her classroom ecosystem is composed of advanced learners, students with disabilities, low to high socioeconomic status students, multilingual language learners, and minority students. Learn how to cultivate a classroom ecosystem designed for personalized, inclusive and equitable experiences.	Salem 3A
8:30am – 9:20am	M	STEM Bridge: Using STEM to Connect Communities across North Carolina <i>Lead Presenter: Amanda Clapp</i> We will share STEM Bridge, a program connecting teachers across NC. It supports teachers in co-planning and co-teaching a Project-Based Learning unit. Their students then work together to develop a product, learning about each other as they solve an authentic problem. Join us to participate or if you want high quality PBL resources.	Salem 3C
8:30am – 9:20am	O	Supporting Middle & Secondary Science Student Teachers with the NGSS <i>Lead Presenter: Debbie French</i> <i>Presenters: Brad Rhew</i> Science student teachers must demonstrate proficiency planning, teaching, and assessing a phenomenon-based lesson connected to the NCSES and NGSS. We will discuss strategies to support student teachers in identifying engaging, relevant phenomena and structuring tried-and-true lessons to meet these criteria.	Salem 3B
8:30am – 9:20am	T	Community Cooperation and Learning Opportunities for Students <i>Lead Presenter: Kristin Holt</i> Students learn best from reaching the highest and most advanced level of Bloom's Taxonomy: creating and teaching others. In this presentation we will discuss student-led presentations, STEAM Night presentations and classroom to classroom cooperation opportunities. Discuss how to begin, step by step, creating these opportunities in your school/community.	Winston 1B
8:30am – 9:20am	T	Just Roll with It: Roly Poly Investigations in the Classroom <i>Lead Presenter: Megan Davis</i> <i>Presenters: Taylor Prichard</i> Whatever you might call them- roly poly, pill bug, sowbug, woodlouse- these backyard crustaceans easily pique student interest. Learn about their biology, where they live, and discover various activities to get students engaged in making observations and scientific investigations.	Winston 3C
8:30am – 9:20am	T	Schools in Parks: Connecting Teachers and Park Rangers Beyond Field Trips <i>Lead Presenter: Sarah Yelton</i> <i>Presenters: Jessica Metz, Jennifer Browndorf</i> Schools in Parks connects elementary teachers and North Carolina park rangers to increase equitable student access to the outdoors. In this workshop we will share strategies for getting students outside, outdoor classroom management tips, and our favorite outdoor curriculum-aligned activities.	Winston 1C

9:30am –
10:20am

Earth/Environmental Sciences Share-a-Thon

Winston Ballroom 2

Presenters: Lisa Tolley

Contributing presenters:

Kristin Owens-White - My activity stresses the importance of recycling. It goes through several items we use daily and the amount of time it takes them to decompose. I use "One Plastic Bag" to tie in with this lesson and the students create a jump rope out of plastic bags to show how we can repurpose items in our homes. I am a "Don't Waste It" facilitator (new), and obtained some of the materials for this activity from my training.

Lottie Peppers - Reference resources for PBL development will be shared. Topics will focus on water as well as sustainability.

Bobbie Marker - Water Quality Bioindicator Group Activity

Tom Savage - Glass making with borax

Carie Fugle - Showcasing Student Voices: Give your students the opportunity to integrate research and literacy skills, collaborative strategies, and ways to showcase student voice this year. Come see how to give students a space that allows them to share and also helps to prepare them to be future ready learners.

Elizabeth Vickery - Debate: Are Coyotes Invasive or just Non-Native to North Carolina? Analyzing the Effects of Coyotes on Red Wolves and Other North Carolina Species

Mark Case - How to create an urban micro garden

Amy Pitts - Create a geologic timeline using toilet paper

Ruthann McComb - Free online energy lessons in Switch Classroom, written by teachers for teachers and students. The energy content and lessons are appropriate for grades 4-12+. I will showcase two lessons and share how to access more.

Rebecca Copp - Sediment Jar - learn how to take a soil sample and determine what percentage of clay, silt, and sand it is.

Keith Bamberger - Molecules and Air Pollution from It's Our Air (www.itsourair.org), and using Air Quality Sensors to show pollution

Emma Refvem - I plan to share a warmup template I use to encourage students to write every day in science class. It incorporates chances for students to explore vocabulary, evaluate sustainability, and engage with current events.

Erika L. Young - Ocean acidification

9:30am –
10:20am

C Exploring OpenSciEd from Carolina

Salem 1A

Lead Presenter: Hoover Herrera

Come experience a model lesson from OpenSciEd for Middle School and see how the new Carolina Certified Edition makes these high-quality instructional materials even better! Leave with classroom resources.

1. Experience the pedagogy of OpenSciEd through a model lesson
2. Learn ways to encourage equitable classroom discourse
3. Create a Driving Question Board with to explore real-world phenomena

9:30am – 10:20am	D Help Your Students See the Universe in a New Light! Winston 3B <i>Lead Presenter: Jessica Logan</i> <i>Presenters: Emma Armstrong, Paul Brayman</i> Participate in hands-on activities focusing on infrared, microwave, ultraviolet, x-ray, and gamma-ray parts of the E/M spectrum utilizing technology. Teachers receive access to a suite of infrared images and uncover ideas for how to integrate these into the classroom.
9:30am – 10:20am	D PBL Adventures: Using Virtual Reality to Connect Students to Science in Real Life Winston 1A <i>Lead Presenter: Stacy Lovdahl</i> Learn how to use simple tech tools to create virtual reality experiences that are centered around the science in the real world and our amazing state and encourage an inquiry approach to learning. Explore exemplars created by NC educators as part of the NC VR Adventures workshops and learn how to incorporate these innovative VR resources into your science classroom.
9:30am – 10:20am	M Accessible Science for English Learners Winston 1B <i>Lead Presenter: Darlene Petranick</i> <i>Presenters: David Flores, Christina Mahar</i> Making core instruction accessible to a variety of English Learners isn't rocket science! With intentional planning and implementation of best practices, you can support multilingual learners with deepening their understanding of science concepts AND developing their English language proficiency.
9:30am – 10:20am	M Engaging Students in the Science of PFAS with Teacher-designed Data-interpretation Activities Salem 1C <i>Lead Presenter: Jenna Hartley</i> <i>Presenters: Andromeda Crowell, Clare Matusevich, Dana Haine</i> Per- and polyfluoroalkyl substances (PFAS), are an emerging class of environmental contaminants known as "forever chemicals." This session will feature data-interpretation activities designed by teachers to engage diverse learners in a relevant environmental health issue and promote biomedical research careers.
9:30am – 10:20am	M Gel Electrophoresis Biotechnology on a Budget to Dye For! Winston 3A <i>Lead Presenter: Beverly Cea</i> Gel electrophoresis is a powerful technique used to manipulate DNA and used as an analytical tool, such as in DNA fingerprinting. Build your own gel electrophoresis device from scratch with simple materials, and use electricity to separate colored dyes.
9:30am – 10:20am	T Embracing and Functionalizing the Outdoor Classroom Salem 3B <i>Lead Presenter: Cynthia Peedin</i> <i>Presenters: Nikki Jones</i> Participants will become more comfortable and prepared to use the outdoors as a classroom. Facilitators will guide participants through the essentials of setting expectations and boundaries for an outdoor learning environment, supporting student engagement and behavior, and meeting science standards.
9:30am – 10:20am	T Growing Science: Learn to Build and Blend Garden Learning Into Science Curriculum Winston 1C <i>Lead Presenter: Emily Lahr</i> This presentation looks to support educators as they connect real-world experiences and the North Carolina science curriculum by designing and building a school garden. We hope to provide teachers with a method of obtaining funding, blueprinting, and creating the space over time.
9:30am – 10:20am	T Investigating Outdoor Environments Using Participatory Science & Technology Salem 3A <i>Lead Presenter: Sarah Yelton</i> <i>Presenters: Julia Little</i> Learn methods for investigating local outdoor environments, including schoolyards, using participatory science (aka citizen/community science) to engage students with technology as they collect, analyze and synthesize authentic research data about the hydrosphere, atmosphere, and biosphere.

9:30am – 10:20am	T	Teaching Nature With a Flare <i>Lead Presenter: Eric Young</i> Creating exciting and effective lessons in nature can be a challenge. In this presentation participants will be given tools to make ecological concepts fun and lasting for the learner. Concepts like cycles, energy flow and interconnectedness will be covered with a flare.	Winston 3C
9:30am – 10:20am	T	The Science House Presents: Identifying Bias and Misinformation in the Media <i>Lead Presenter: Jason Carter</i> <i>Presenters: Michelle Benigno</i> We are currently in an epidemic of misinformation. This session will provide teachers with critical-thinking tools to guide students (and themselves) when choosing and evaluating sources of information.	Salem 3C
9:30am – 10:20am	T	To STEMfinity and Beyond! <i>Lead Presenter: Alexis Moore</i> To STEMfinity and Beyond will be a interactive learning session in which educators will get a in-depth look at how blended instruction can work within and beyond the STEM classroom. Participants will leave with a better understanding of how they can creatively integrate STEM blended instruction with project-based learning, hands-on science learning labs, both in person and virtual field trips with community partnerships to create Outdoor Science Classrooms, Weather Stations, and more. Educators will see examples of STEM lesson plans and units designed to allow students to develop critical thinking skills, build confidence, increase interest in STEM CTE pathways, and create a positive collaborative community beyond the four walls of the classroom.	Salem 1B
10:30am – 12:00pm		Keynote Speaker Dr. Luke Dollar & General Session	Winston Ballroom 2
12:00pm – 1:00pm		Reality Check An opportunity for pre-service teachers to network and to meet with seasoned educators for information and tips for success. Light lunch is provided.	Winston 3C
12:00pm – 1:30pm		Lunch and Exhibit Hall Activities Spin-a-Wheel for door prizes in the Exhibit Hall. Grab a quick lunch at the snack bar downstairs, visit our exhibitors and use your ticket for a chance to win a door prize.	Salem Ballroom 2
1:30pm – 2:20pm	C	Gamification vs Game-Based Learning <i>Lead Presenter: Rose Roberts</i> Gamification and Game-Based Learning are two of the hottest buzzwords in education at the moment. Join Plasma Games as we define the key differences and show you how we use Game-Based Learning through our video game, Sci-Ops: Global Defense.	Salem 1A
1:30pm – 2:20pm	D	Engineering the Future - Wind Power and Electric Vehicles <i>Lead Presenter: Tommy Johnson</i> A project-based approach to build and test windmills, wind turbines, and EVs to make moving sculptures, generate electricity, and race cars. The design process guides these inquiries while data collection and analysis connect to the cross-cutting concepts of the NGSS.	Salem 3C
1:30pm – 2:20pm	D	Invisibility Cloaks to Gecko Feet: NC Science Teachers Share Lesson Plans on Innovations in Science <i>Lead Presenter: M. Gail Jones</i> <i>Presenters: Kathleen Bordewieck, Julianna Nieuwsma, Kimberly Ideus</i> Explore new ways to add cutting edge science into your curriculum. North Carolina teachers will share standards-based lesson plans that teach about science innovations with applications to the environment, medicine, and energy. Copies of lessons will be shared.	Salem 1C

1:30pm – 2:20pm	D	Show Me What You Learned <i>Lead Presenter: Peter Panico</i> Let students take ownership by showing what they have learned using the latest technology and approaches. Experiment with several innovative methods including green screening, augmented reality, scavenger hunts, coding and videos where students work collaboratively and creatively.	Winston 1A
1:30pm – 2:20pm	D	Touch-Talk-Text: Integrating Science in the Literacy-Centered School Day <i>Lead Presenter: Danielle Scharen</i> <i>Presenters: Sarah Carrier</i> This study analyzed elementary preservice teachers' practices and development while integrating science and literacy with the Touch-Talk-Text framework. This framework encourages teachers to provide interdisciplinary learning opportunities for ALL students to access science through sensory, language, and discourse connections.	Winston 3C
1:30pm – 2:20pm	D	Use of Digital Tools in the Face to Face Classroom <i>Lead Presenter: Erica Sypole</i> <i>Presenters: Jamie Smith</i> This is a presentation on the use of newly designed digital assignments from the pandemic that are still relevant and interesting for students in any classroom setting	Salem 3B
1:30pm – 2:20pm	D	Using Geospatial Tools (GIS) for Argumentation and Evidence <i>Lead Presenter: Carrie Jones</i> <i>Presenters: Adrienne Evans</i> Through this presentation, participants will gain an understanding of using GIS as a framework for gathering, managing, and analyzing data. They will be able to demonstrate how to use existing or student-generated maps for argumentation and evidence.	Winston 3A
1:30pm – 2:20pm	M	Engaging Classrooms - Concrete Strategies to Engage and Meet the Needs of Diverse Learners in Your Classroom <i>Lead Presenter: Justin Ingram</i> This session will cover a variety of instructional strategies you can incorporate immediately to help engage students and meet the various cultural and social-emotional needs in your classroom.	Winston 1B
1:30pm – 2:20pm	M	Explore Your Environment <i>Lead Presenter: Renee Strnad</i> Project Learning Tree has been the leader in Environmental Education curriculum for over 40 years, and has spent the past two years releasing new materials including the Explore Your Environment activity guide. Come check out new print and digital materials!	Winston 3B
1:30pm – 2:20pm	M	Program Management for Pipelines and Mentorship <i>Lead Presenter: Stan Hill</i> <i>Presenters: Kelsey Canovai, Leslie Russell, Jim Duffey</i> Interested in leveraging local resources to launch or improve a pipeline program or manage student mentorship? Learn about CERTL's innovative Best S.E.L.F. program within the Atrium Wake Forest Baptist Health system and how to develop student interest in STEM-related careers.	Salem 1B
1:30pm – 2:20pm	T	Sharing Secrets for Outdoor Learning: Engaging Students in the Schoolyard <i>Lead Presenter: Annie Roth</i> <i>Presenters: Great Smoky Mountains Institute at Tremont</i> Join the staff of Tremont Institute to get away from your seat and explore outside while encouraging observation, conversation, and reflection. Ending our time together, you'll find yourself able to facilitate these experiences and connect with like-minded individuals along the way.	Salem 3A

1:30pm – 2:20pm	T	Using Nature Journals as a Tool for Scientific Inquiry <i>Lead Presenter: Megan Davis</i> <i>Presenters: Taylor Prichard</i> Examine ways to practice scientific inquiry with your students through nature journaling. Try out various techniques and prompts that work well on all school grounds. Discover cross-curricular connections through activities that can be used by both virtual and in-person classrooms.	Winston 1C
2:30pm – 3:20pm	C	From Particles to Properties: Chemistry Concepts with Water Models <i>Lead Presenter: Ruth Hutson</i> Explore how physical models foster an understanding of the structure of water and how their interactions explain the properties of water observed on the bulk scale.	Salem 1A
2:30pm – 3:20pm	C	Teaching Conservation Genetics with the Duke Lemur Center <i>Lead Presenter: Ally Huang</i> Come with miniPCR bio on an expedition to Madagascar! Analyze morphological data and run electrophoresis gels to determine whether researchers have rediscovered a lemur species once thought to be extinct. Based on real field data from the Duke Lemur Center.	Salem 1B
2:30pm – 3:20pm	D	Mapping Inequity: Examining the Science of and Solutions to Extreme Heat <i>Lead Presenter: Emma Refvem</i> Engage students in learning about extreme heat and the urban heat island effect through interaction with maps highlighting environmental factors and demographic indicators. Data interpretation activities will prompt students to identify vulnerable populations and examine strategies for addressing extreme heat. about: Emma Refvem, MAT is the 6-12 Science Specialist for Durham Public Schools and a PhD Candidate at NC State University, pursuing a degree in Learning and Teaching in STEM with a focus on Science Education. She is a National Board Certified Teacher with experience teaching Earth and Environmental Science at all high school levels. Her work focuses on science educator career aspirations and the work of instructional coaches in the secondary science classroom.	Salem 3C
2:30pm – 3:20pm	D	Teaching Human Ecology with Models and Simulations <i>Lead Presenter: Leigh Apple</i> Discover activities and digital tools that use models and simulations to help students understand ecological concepts, including how human activities can change the physical landscape, affect ecosystems on land and in water, and alter the atmosphere. Suggested assessments accompany activities.	Winston 1A
2:30pm – 3:20pm	M	Engage All Students in Science Using Stations <i>Lead Presenter: Michelle Hafey</i> <i>Presenters: Jessica Croson</i> Join us to explore strategies to engage your students using a station model. Consider ways to address student misconceptions, include literacy connections, and provide hands-on learning in fun and meaningful ways.	Winston 1B
2:30pm – 3:20pm	M	Mo' Money, Less Problems! Learn about the Career Award in Mathematics and Science Teaching. <i>Lead Presenter: Brad Rhew</i> <i>Presenters: Michelle Ellis</i> Would you like to learn more about how to get funding to grow yourself and your students in science and math education? Do you need ideas of how to write your grant proposal? Come learn from a panel of CASMT awardees about their current and previous projects and how to begin your process of applying for this prestigious grant.	Salem 3A

2:30pm – 3:20pm	M	Using Colorimetric Models to Evidence Cellular Processes! <i>Lead Presenter: Beverly Cea</i> In this session, participants will learn how to use concentrated model organisms and a simple color indicator solution to evidence the cycling of carbon. They will then use the model system created to study photosynthesis through a series of student-centered investigations.	Salem 1C
2:30pm – 3:20pm	T	Coastal Eco Explorer: Hike and Seek and Learn! <i>Lead Presenter: Amy Taylor</i> <i>Presenters: Dennis Kubasko</i> Discover 'Island Ecology for Educators' coastal NC learning resources with accompanying lesson plans merging environmental science and technology providing student opportunities to explore ecosystem interdependence. Explore digital tools like our Coastal Eco Explorer mobile application to teach beyond your classroom.	Winston 3B
2:30pm – 3:20pm	T	Jump Like No One Is Watching <i>Lead Presenter: Lindsey Stalls</i> Discover more about moving science learning outside the traditional classroom using Project-Based Learning, which incorporates core content standards and encore. Participants will engage in hands-on learning and leave with lesson resources.	Salem 3B
2:30pm – 3:20pm	T	NC Space Grant Resources for all Teachers <i>Lead Presenter: Neil Pifer</i> <i>Presenters: Christine Sudzina Schut</i> NC Space Grant has multiple programs and opportunities for all science teachers. Two Space Education Ambassadors from cohort 1 will give you resources and lessons for your classroom that integrate the James Webb telescope, JPL and NASA lessons into your classroom.	Winston 3A
2:30pm – 3:20pm	T	One Plastic Bag <i>Lead Presenter: Kristin Owens-White</i> Discuss the book "One Plastic Bag" and how the book can be tied into the reading and science standards. I will show several ways that everyday items can be repurposed instead of thrown in the trash. The audience will be given instructions on how to make a jump rope out of plastic bags.	Winston 3C
2:30pm – 3:20pm	T	Promoting Authentic Learning Experiences Through Inquiry & Citizen Science <i>Lead Presenter: Rachael Polmanteer</i> <i>Presenters: Melaine Rickard</i> Come explore approaches to facilitating citizen science with students, promoting authentic learning experiences. Participants will engage in hands-on, inquiry-based activities, learn about standards-aligned resources, and be entered into a STEM material drawing. We will highlight Marine Debris Tracker.	Winston 1C

Elementary Share-a-Thon*Presenters: Laura Lowder*

These are the combined shares for the Elementary and the Middle School Share-a-Thons.

Contributing Presenters:

Amy Leah Sparks - Hands-on activities to support the human body unit.

Erika Allen & Danielle Scharen - This activity is a lesson demo on sound waves for elementary students using string telephone. This activity focuses on the importance of interdisciplinary learning strategies in science and literacy by including informational texts, writing opportunities, and student-to-student discourse about their observations through their hands-on/minds-on science activities. This Share-a-Thon presentation will benefit elementary school teachers and elementary teacher educators.

Amanda Clapp - STEM Bridge is a new program to provide in depth PD for teachers in grades 5-8 to develop PBL units and co-teach them with partners from another community in NC. We're looking for more teachers to participate and we have great unit plans and pictures to share.

Kristin Owens-White - Tree Cookies based off of Project Learning Tree. Using tree cookies, students determine the age of the tree. This activity can be taken outdoors to explore the area for tree stumps and count the rings. Students will create a tree cookie that represents their own lives by drawing out rings on a paper plate. As a writing extension, the students can write a story about the tree cookie and what each ring represents.

Kelly Ficklin (with Preservice Teachers) - Geocaching and GPS in the Classroom

Linda Kinney - Bug/Pollinator/Plants/Animal Investigations: Using photos as inspiration, participants will build an insect/plant/animal using a variety of loose materials. Participants can build a pollinator, flower, or another kind of insect or animal. This playful learning Steam Challenge is a fun way to introduce students to pollinators, plants or animals and inspire further investigations. Directions will be provided on how to upload the STEAM Challenge activity sheet and how to make their own loose part activity totes.

Renee Strnad - Project Learning Tree activities

Rachel Brewer - Rereading with color: a flexible reading strategy that helps students read with a purpose (helping them pick out important information) and gives them a unique way to record different categories of information (which can help with recall).

Rachael Polmanteer - This activity tackles the engineering process of building and altering a catapult to meet certain challenges. It is infused with literacy and provides teachers with full lessons on how to integrate science and literacy in their elementary classroom.

Jonathan Navarro - K-12 Air Quality Education

N.C. Air Awareness is the public outreach and education program of the North Carolina Division of Air Quality. The program helps individuals and organizations learn how their actions can reduce air pollution, improve air quality and improve one's health.

The program provides a variety of free K-12 lessons and resources for teachers. All lessons are aligned with the N.C. Essential Standards to help students reach established academic goals. All lessons are completely free and hundreds of teachers across North Carolina are already using our content.

Mark Case - We will share one pagers on NEED's free environmental science activities such as "Cost of a Thanksgiving Meal", "Climate Science Compilation", and "Make a Solar Chameleon"

Judith McDonald - Active Student Centers on Air Pressure

Keith Bamberger - Air Quality Lift from The Adventures of Clair and Cam, and the AQ-IQ Contest for Seventh Grade Students

Sydney Angelica, Taylor Bearden, Jessica Leshko, Alyson Hilburn, Rebecca Hinson, Emma Shumate-Sutphin, Jahmik Bell, Katelyn Sifford, Marina Katelyn Barfield, Rmondrah Singleton, Bridgett Kendra, *Kassidy Parsons - Various elem. hands-on science activities across NCSCoS

Judith McDonald - Short activities aligned to K, 3, and 5th grade

Jennifer Crawford - Inspire the next generation of Cyber Stars by igniting cybersecurity excitement and awareness. Introduce your students to one of the fastest growing career fields in the world.

Rustina DT Sharpe - Utilizing the Magnificent Mammals activity from the NCWRC, I introduce students to the wonder and discovery of NC's native wildlife. This includes counting the teeth of skulls, and actually touching real NC animal furs, deer antlers and turkey claws and feathers. To integrate literacy, I have created developmentally appropriate materials for scavenger hunts based on either the initial letter of each animals name or by reading highlighted information provided through fact sheets from NCWRC. I also discuss habitat, adaptations (camouflage, web verses clawed feet on birds) while facilitating the activity.

Presenters: Michelle Hafey

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3:30pm – 4:20pm	C	Demystifying Protein Dimensionality and Exploring Enzymes <i>Lead Presenter: Ruth Hutson</i> Explore how proteins get their dimensionality; focus on enzymes, their active sites, and which factors limit enzyme activity. End with tips to help students interpret results from the catalase lab.	Salem 1A
3:30pm – 4:20pm	C	Genes in Space: Genetics on the ISS, Free Loaner Equipment, and More! <i>Lead Presenter: Ally Huang</i> Genes in Space is a free experimental design competition for students in middle and high school. Join us to learn about the contest and hear how you can receive a free classroom loan of ISS biotechnology equipment.	Salem 1B
3:30pm – 4:20pm	D	Green Plants, Red Glow: Chlorophyll's Red Fluorescence as a Signal of Photosynthesis, Agriculture, and Global Ecology <i>Lead Presenter: Kathy Nguyen</i> <i>Presenters: Rachael Polmanteer</i> Photosynthesis is one of the most important (and challenging) biological processes to teach students. Through a hands-on, low-cost experiment, students can extract chlorophyll and observe a red light emitted by the chlorophyll upon illumination – serving as an anchor for discussions surrounding the use of chlorophyll fluorescence as a proxy for the extent of global photosynthesis.	Salem 3C
3:30pm – 4:20pm	D	How Do I Do This?!? STEAM in the Elementary World <i>Lead Presenter: Jason Vanzant</i> Participants will be exposed to digital tools (FlipGrid, PearDeck, Stop Motion, Google forms, sheets, and slides) to promote differentiated and blended learning styles. Participants will leave the session with K-5 STEAM lessons and premade materials housed on a Google site.	Winston 1A
3:30pm – 4:20pm	D	Immersing Your Students in the Human Body <i>Lead Presenter: Kayla Boykin</i> This presentation will highlight lessons designed to teach students about the systems of the human body and how they work together to support life. Each lesson includes an interactive learning experience related to each body system. Activities include building models, participating in dissections, simulations, and much more. You will leave the session with a folder of resources that you can take back to your classroom and utilize with your students.	Salem 1C
3:30pm – 4:20pm	D	Utilizing Stations in the High School Science Classroom <i>Lead Presenter: Helen Powell</i> This session will explore how I use stations in my science courses (Earth, Bio, Chem). It will cover the facilitation aspect of a student centered approach with the teacher as both the facilitator and a station. It will also cover learning teams, team contracts/norms, and possible variations. Part of the session will be sharing ideas with the group.	Salem 3A

3:30pm – 4:20pm	T	Environmental Education - Resources that Take Science Beyond the Classroom <i>Lead Presenter: Lisa Tolley</i> Want to engage students in science through place-based, community-based, and relevant hands-on outdoor experiences? The NC Office of Environmental Education can connect you with nonformal environmental educators and programs, professional development opportunities, citizen science projects, field trip destinations, outdoor classroom resources and more!	Salem 3B
3:30pm – 4:20pm	T	K-12 Science Leadership: Develop your Voice <i>Lead Presenter: Dorothy Holley</i> <i>Presenters: Brad Rhew, Kathy Bosiak, Andi Webb</i> This presentation explores how science leadership looks across elementary, middle, and high schools. Participants will gain a deeper understanding of the vertical alignment of science leadership across grade levels and the overall impact it has on student learning in science.	Winston 3C
3:30pm – 4:20pm	T	Social and Emotional Learning in the Science Classroom <i>Lead Presenter: Kristin Holt</i> What is social and emotional learning in the science classroom? It is way more important than we all think! Looking at social and emotional strands provided by CASEL.org, discuss and move into ways to embed this important curricula into the science classroom (and you may already be doing it!)	Winston 1B
3:30pm – 4:20pm	T	Solve the Mystery and Promote Environmental Sustainability <i>Lead Presenter: M. Gail Jones</i> <i>Presenters: Amy Taylor, Julianna Nieuwsma, Kathleen Bordewieck</i> Explore how to integrate hands-on investigations about environmental sustainability into your lessons. Find out the next big threat to clean water by solving a mystery situated in North Carolina. Take home new, creative lesson plans linked to the standards.	Winston 3B
3:30pm – 4:20pm	T	Taking Middle School Science Out of the Classroom <i>Lead Presenter: Sonja Younger</i> How can the resources in your community provide awesome field trips that teach and reinforce important science concepts? From water quality to air quality, marine science to orienteering, middle school science offers a unique opportunity to connect standard science content meaningfully to the students lives. Tap into the amazing resources NC offers teachers who want to take learning beyond their classroom.	Winston 1C
3:30pm – 4:20pm	T	The ISS National Laboratory - Resources for Educators <i>Lead Presenter: Betty Jo Moore</i> Learn about the resources available (many are free) from the ISS National Laboratory and the Space Station Explorer Program.	Winston 3A
4:30pm – 5:15pm		Exhibit Hall Extravaganza This time is dedicated to our exhibitors. Visit and see all of the exciting products and services they have to offer. This is also another opportunity to participate in our Spin-a-Wheel to win door prizes.	Salem Ballroom 2
5:30pm – 6:15pm		Reception honoring our Award Winners	Winston Ballroom 2
6:15pm – 7:30pm		Award Ceremony (and Prize Giveaway) Join us in honoring our 2022 award winners. Bring your tickets to be included in our prize giveaway.	Winston Ballroom 2

C Commercial **D** Digital Teaching Tools **M** Meeting the Needs of our Diverse Learners **O** Other

T Taking Science Learning Beyond the Classroom

NOVEMBER 4 • FRIDAY

7:30am – 12:00pm	Registration/Check-in	Salem Foyer
8:00am – 2:00pm	Exhibit Hall Opens	Salem Ballroom 2

Presenters: Adrienne Evans

Contributing Presenters:

Stephanie Creech - I bought a Teachers Pay Teachers Periodic Trends Battleship Game from Nature Nerd Chronicles, but I created my own scoresheet and response sheet to go with it. I have reached out to the owner to see what kind of license I would need to share the activity. I myself created a foldable organizer to teach an entire unit on atomic structure that I paired with a PhET simulator and an application called Classkick where I can see students answering questions in real time and we can use a chat box to ask and respond to questions. When EVAAS data was collected for chemistry teachers, my students consistently scored above county and state average on the atomic structure section. I also put a PES (photoelectron spectroscopy) activity into Classkick as an individually paced inquiry lesson. The lesson was shared with me via a NMSI (National Math Science Institute) workshop I attended summer 2021. I created a WebQuest for chemical bonding. The students had to watch short video lessons and take notes. I provided them with questions they should be able to answer with their notes as they watched the videos. They then worked in pairs to answer additional questions using their notes. I have used graham crackers (diatomic elements) and marshmallows (monatomic elements) to teach simple synthesis reactions. I did the activity with different color bingo chips, but the retention was better using food. LOL

Jeanna Goodson - I will present various activities that can be used for demonstrations or group activities surrounding the concepts of force and motion, energy and waves.

Alison Baker - This table will highlight Plasma Games collaborative, interactive, and themed vocabulary and unit review games such as Mind Reader, Territory Takeover, and Strike!. These engaging group review games can be used at the end of a unit or as an end of year review. Challenge students to Level Up and defeat the HIVE aliens while achieving mastery in science vocabulary and critical science skills.

Alison Baker - This table will highlight the real world, practical uses of STEM careers and STEM technologies by taking students through STEM challenge activities. These collaborative activities are designed to teach and model for students the engineering design process, reinforce content knowledge, and apply critical thinking skills.

Alison Baker - This table will showcase hands-on investigation station labs. Mini-lab investigation stations exploring the behavior of light and exothermic and endothermic reactions as well as the concept of insulation will be featured. Labs include student roles for increased collaboration and processing and analysis questions to support student deeper student understanding.

Alison Baker - This table will showcase the periodic table and how it is organized by tasking students to work with a partner to organize a set of aliens based on their shared characteristics. This exploration and modeling activity leads to the concept that elements on the periodic table are organized by similarities amongst elements.

Alison Baker - This table highlights critical thinking activities related to atomic structure. In the Sci-Ops Base Briefing station activity, students examine a variety of documents and artifacts related to various scientists to produce a timeline of atomic theory. Along with creating a timeline, students analyze the role the scientific method played in advancing our knowledge of atomic structure. Additionally students analyze information presented in different formats to reinforce critical thinking and reasoning skills along with building scientific literacy skills.

8:30am – 9:20am

Life Science/Biological Sciences Share-a-Thon

Winston Ballroom 2

Presenters: Michael Lowder

Contributing Presenters:

Jennifer Redfearn - Whiteboarding in the Secondary Science Classroom- teachers will interact with large whiteboards to make meaning of the content and learn in a cooperative fashion

Melissa King - Codon Bingo to practice use of the codon chart; Alien DNA sequencing to practice transcription and translation to "create" an alien using found traits

Dr. Christopher Murray - Honeybees

8:30am – 9:20am

C Improving Critical Thinking Skills with Virtual Simulations

Salem 1A

Lead Presenter: Iris Mudd

Learn how ExploreLearning Gizmos virtual simulations can be used to increase student engagement and critical thinking—for current and potential users alike! All attendees will receive a goodie bag, free trials, and a chance to win door prizes!

8:30am – 9:20am

C Use Molecular Tools to Find Antibiotic Resistance Genes in Environmental DNA

Salem 1B

Lead Presenter: Ally Huang

Join a national monitoring program tracking the spread of antibiotic resistance in the environment. Choose locations, collect soil, and probe for genetic signatures of common antibiotic resistance genes using PCR.

8:30am – 9:20am

D Designing Escape Boxes

Salem 3A

Lead Presenter: Sharon Beck

Turn any multiple-choice review into an exciting escape! Learn to create digital and in-person escapes to help keep students interested, engaged, and motivated. Attendees will participate in an escape and receive an escape template.

8:30am – 9:20am

D Ready to Use Hands-On Experiments for Every Unit in Earth Science

Winston 3A

Lead Presenter: Sarah Laws

Join Sarah Laws, Yancey County Schools 2021 Teacher of the Year and Northwest Regional Teacher of the Year Runner-Up, as she demonstrates hands-on labs tied to the standards for each unit in earth science. Leave this session with lessons you can implement immediately, including cookie mining for the Lithosphere Unit, density boxes for the Hydrosphere Unit, properties of air lab for the Atmosphere Unit, biodiversity of leaf litter for the Biosphere Unit, and a solar paper activity for the Astronomy Unit.

8:30am – 9:20am

D Tackling the Standards with Inquiry and Hands-On Practices

Winston 3B

Lead Presenter: Melaine Rickard

Presenters: Rachael Polmanteer, Todd Guentensberger

A hands-on, inquiry-based session providing specific lessons to design experiments, collect data, make observations, draw conclusions, and inspire curiosity while teaching your standards. Teachers will leave with lesson plans, materials, and be entered into a STEM material drawing

8:30am – 9:20am

D Using Data Sets In Your Classroom

Winston 1A

Lead Presenter: Betty Jo Moore

Having students able to analyze data is important. Using authentic data and computational thinking are important skills for students of all grade levels. This session will focus on creating data sets and using them in meaningful ways. (6-12)

8:30am – 9:20am

M Introduction to Blended Teaching

Salem 1C

Lead Presenter: Bobbie Marker

An introduction to strategically blending technology and traditional teaching methods to meet the needs of all students.

8:30am – 9:20am	T	Citizen Science in Elementary Classrooms <i>Lead Presenter: Jill McGowan</i> <i>Presenters: Sarah Carrier</i> Would you like to learn about how citizen science can help you address science and other standards in your classroom? We will share interdisciplinary lesson ideas using the citizen science project: Community Collaborative Rain Hail and Snow Network (CoCoRaHS).	Winston 3C
8:30am – 9:20am	T	Everyone Does Science <i>Lead Presenter: Judith McDonald</i> <i>Presenters: Alisa Wickliff</i> This session highlights engaging the community with elementary science learning. We will explore how all K-5 teachers can get their local community members involved in science learning, aligned with the standards. Participants will leave this session with lessons that they can use tomorrow.	Winston 1B
8:30am – 9:20am	T	In the Schoolyard with PLT and iTree <i>Lead Presenter: Renee Strnad</i> Help students incorporate their tree ID and measurement skills to calculate the ecosystem services and values of trees in the schoolyard or community! This session introduces the free Project Learning Tree iTree materials with discussion on how to implement.	Salem 3C
8:30am – 9:20am	T	Lichen or Not Lichens are Everywhere <i>Lead Presenter: Keith Bamberger</i> <i>Presenters: NC Department of Environmental Quality - NC Air Awareness</i> Lichens grow in almost every schoolyard in North Carolina and are good indicators of air quality and environmental health. You will learn a little about lichens, and how to set up lichen learning centers on your campus.	Winston 1C
8:30am – 9:20am	T	The Science House Presents: Shift Happens <i>Lead Presenter: Michelle Benigno</i> <i>Presenters: Jason Carter</i> You are already doing great STEM work, now what? Experience a STEM lesson and then work through a guided reflection process that demonstrates how to identify areas that can be enhanced to become more student driven/minds-on, reflecting a gold-standard PBL.	Salem 3B
9:30am – 10:20am	C	Next Level Learning: Using Interactive STEM Cases to Power Up Thinking! <i>Lead Presenter: Toni Milleret</i> Working with Interactive STEM Cases will empower our students to jump into the role of a real STEM professional tasked to solve real-world problems.	Salem 1A
9:30am – 10:20am	D	Bring the Science of Energy to your Classroom! <i>Lead Presenter: Mark Case</i> <i>Presenters: NEED Project</i> <i>Exhibitors: NEED Project</i> Confidently teach energy forms and transformations to your students! Hands-on investigations use items we encounter in our daily lives-glow sticks, hand warmers, batteries, etc., but we may have little understanding of the science behind how they work.	Salem 3C
9:30am – 10:20am	D	Effective Multiple Choice Assessments In Science Instruction <i>Lead Presenter: Morgan Jenkins</i> This presentation will focus on creating effective multiple choice (MC) assessment items. Topics will include how performance goals align with types of assessments, what research has to say about assessment formats, and tips on how to critique MC items.	Salem 1B

9:30am – 10:20am	D Rolling Through Science With Sphero <i>Lead Presenter: Kathy Pesce</i> <i>Presenters: Cassandra Schmidt, Kelsey Broome</i> Incorporating robotic technology into your classroom invites innovation & critical thinking. Sphero can be implemented in ways that are useful throughout different levels of student learning. Let students take Sphero for a tour through science topics to develop problem solving skills.	Winston 1A
9:30am – 10:20am	D The Best Online Resources for Evolution Education <i>Lead Presenter: Amanda Clapp</i> The Teacher Institute for Evolutionary Science (TIES) familiarizes middle school science teachers with evolutionary biology for them to fulfill their curriculum requirements. TIES provides free, ready-to-use resources that teachers can begin to use immediately, including presentation slides and labs.	Salem 1C
9:30am – 10:20am	M No Bones About It! Shake Rattle and Roll with the Human Body <i>Lead Presenter: Amy Sparks</i> Love hands-on learning? Then this is the unit for you! This workshop allows you to take home exciting ideas so that you can teach your students about the human body! While attending this workshop, you will have a unit that has lesson plans for at least 2 weeks! You will shake, rattle, and roll when you see this unit!	Winston 1B
9:30am – 10:20am	M Top Down Support for Science Teachers <i>Lead Presenter: Cliff Hudson</i> Science Coaching 101: join this think tank for supporting science teachers with curriculum and instruction for curriculum/instructional coaching, school and district level personnel.	Salem 3A
9:30am – 10:20am	M Up and Moving! How Station Activities Can be Used to Create Independent Learners <i>Lead Presenter: Covey Denton</i> Direct instruction can be tedious for teachers and for students. Implementing stations and movement in the classroom can help students get up, collaborating and ready to learn independently. Allowing for exploration prior to direct instruction can help increase student engagement and get them curious about what the next unit will entail.	Salem 3B
9:30am – 10:20am	T Creating Storylines <i>Lead Presenter: Kathy Bosiak</i> Ever want to know how to take a phenomenon that you have experienced and turn it into usable activities in your class? Storyline development could be just what you need. We'll chat about Earth Science , but anyone can make a storyline.	Winston 3A
9:30am – 10:20am	T Elements of Science <i>Lead Presenter: Angela Adams</i> <i>Presenters: Jean Pelezo</i> Come and see how using teachers' and students' data/surveys shows the elements of science engagement for learning science standards and student success. Share instructional strategies and practices teachers and students enjoy!	Winston 3C
9:30am – 10:20am	T School Outdoor Learning Spaces: Using your school campus to teach your students! <i>Lead Presenter: Tammi Remsburg</i> Students love to learn outdoors-why not give them the chance? Find out some simple ways to incorporate learning outdoors and get links to materials to help you teach elementary to middle school students in the great outdoors!	Winston 3B

9:30am – 10:20am	T Teachers as Learners: Empowering Educators through Hands-on Conservation Work Winston 1C <i>Lead Presenter: Gail Lemiec</i> The North Carolina Aquariums' Ecological Adventures programs take educators into the field. Participants explore a conservation area of focus for the Aquariums including collecting data on sharks, monitoring sea turtle nests, and restoring critical habitat. Educators become the learners in these courses. Join us for a look at this new initiative and see how you can get involved!
10:30am – 11:20am	C Learn how BIOZONE'S superb interactive texts and Teacher Toolkit support teachers to deliver flexible and engaging science programs Winston 1C <i>Lead Presenter: Lissa Bainbridge-Smith</i> BIOZONE's extensive product range supports teachers to deliver engaging programs across a range of topics including: Biology, Environmental Science, Physical Sciences, Earth and Spaces Sciences, Chemistry, Physics, and Anatomy and Physiology. Our Teacher Toolkit resources increase student engagement, and provide teachers with flexible tools to plan, deliver, and assess within their program. Attendees will receive a FREE one year ebook license to a title of their choice.
10:30am – 11:20am	C Let's Engage Students through Phenomena-based Science Instruction Winston 3B <i>Lead Presenter: Karma Clarke</i> Are you looking for a way to increase student ideas in the development of investigative phenomena? We will work in collaborative teams while experiencing an anchoring phenomenon routine that provides students with skills to develop a driving question board. We will discuss the types of phenomena and how they can be used effectively in the classroom, how to use phenomena to teach three dimensionally and how to organize and focus students' questions to link them to the current content learning goals.
10:30am – 11:20am	C Looking for patterns in species diversity Winston 1B <i>Lead Presenter: Linda Culpepper</i> <i>Exhibitors: John Garrett</i> Look for patterns in species diversity in coral reef ecosystems and other animals to determine cause and effect relationships and understand how ecosystem interactions affect patterns of biological diversity.
10:30am – 11:20am	D Changing the Game with Nearpod and Flocabulary Winston 1A <i>Lead Presenter: Melissa Easley</i> <i>Presenters: Bishay Faris</i> Nearpod and Flocabulary help educators make any lesson interactive whether in the classroom or virtual. Nearpod allows teachers to create original interactive presentations with extensive standards-aligned content available. Flocabulary increases critical thinking amongst their students and brings current hip hop beats to interactive lessons.
10:30am – 11:20am	D Connecting Instructional Content to Real-World Problems and Career Pathways Winston 3A <i>Lead Presenter: Jennifer Stalls</i> In this session, teachers will learn how to use large data sets to incorporate authentic data analysis in their lessons while connecting data to real-world applications.
10:30am – 11:20am	M Integrating Student Culture Into Chemistry Salem 3C <i>Lead Presenter: Kristen Kane</i> The session will focus on how to connect the NC Chemistry curriculum with culturally relevant lessons. This session will provide guidance on how to start the process of integrating culture into lessons.

10:30am – 11:20am	<p>O Using Tradebooks for Elementary Science Winston 3C</p> <p><i>Lead Presenter: Emily Cayton</i> <i>Presenters: Kathleen Castillo-Clark</i></p> <p>This session will focus on integrating literacy into elementary science classes. Tradebooks will be used to demonstrate various integration techniques. Handouts of books will be provided.</p>
10:30am – 11:20am	<p>T Elon Explorers – BUG CAMP – Exploring the Fascinating World of Insects Salem 1C</p> <p><i>Lead Presenter: Mark Enfield</i> <i>Presenters: Monique Bellerand, Jen Hamel, Jennifer Russell</i></p> <p>During a week-long summer program, middle school students learned about insect collection and classification, habitats, and evolution. Camp activities, replicable in classrooms, included collecting and preserving insects, investigating pollinators, and practices like science notebooks and individual and group reflections.</p>
10:30am – 11:20am	<p>T Expanding the Outdoor Classroom Salem 1B</p> <p><i>Lead Presenter: Cynthia Peedin</i> <i>Presenters: Nikki Jones</i></p> <p>This is for participants who are comfortable teaching outdoors and are asking “Now what?” Facilitators will introduce strategies for building lessons that meet multiple goals, present tips for innovating games and activities, and deepen participants’ confidence in the outdoor classroom.</p>
10:30am – 11:20am	<p>T Exploring the Scientific Method Through Storytelling and Citizen Science Salem 3B</p> <p><i>Lead Presenter: Lena Deskins</i> <i>Presenters: Rachael Polmanteer</i></p> <p>A hands-on, youth-centric citizen science program that teaches students to “think like a scientist” by embodying the Scientific Method in a unique program. Utilizing aspirational characters and storylines from “The Paper Girls Show” we will enhance the fun in science education.</p>
10:30am – 11:20am	<p>T How to Make Your STEM Club Reach Beyond Your School Doors! Salem 1A</p> <p><i>Lead Presenter: Manda Jackson</i> <i>Presenters: Katie Singleton</i></p> <p>Are you looking for a way to expand your Science Classroom/STEM Club? The world outside of your building is open for opportunities. Learn activities to guide your students to develop stewardship of their own world.</p>
10:30am – 11:20am	<p>T STEAM Mentoring to New Heights Salem 3A</p> <p><i>Lead Presenter: Jessica Croson</i> <i>Presenters: Angelia Reid-Griffin</i></p> <p>When students are able to “see themselves” in the content they will be more excited to engage with the material. Learn how high school students are mentoring younger students in order to increase involvement in STEAM opportunities.</p>
11:30am – 12:20pm	<p>Lunch Provided by STEMscopes - By ticket only Winston 3B</p> <p>Lunch hosted by STEMscopes with presentation. Free lunch served with ticket only. Get details at the STEMscopes booth in the Exhibit Hall, booth #404.</p>
11:30am – 12:20pm	<p>D Design Thinking: Solving Problems That Matter Salem 1A</p> <p><i>Lead Presenter: Brian Whitson</i> <i>Presenters: Cheryl Chaunecy</i></p> <p>Design Thinking is a human centered problem solving process rooted in empathy. In this series, participants will explore the Design Thinking process to create transformative learning experiences that will cultivate student creativity, critical thinking, collaboration, communication, and student agency.</p>

11:30am – 12:20pm	D Elevating Laboratories: Immersing Students in Audio, Video and Images <i>Lead Presenter: Emily Lahr</i> This session looks to support attendees in elevating science laboratory activities through creating blended experiences using audio and visual tools to deepen student learning and support connections to content.	Winston 1A
11:30am – 12:20pm	M Calling all Artists! How to Infuse Glass Making into Science Classes <i>Lead Presenter: Tom Savage</i> Have you ever wondered how to get the artists in your classroom interested in Science / Chemistry ? This session will explain the many chemicals associated with the colors of glass and will include hands on activity using household ingredients. 2019 NCSTA funded project	Salem 3C
11:30am – 12:20pm	M Digesting Diversity: Maximizing Engagement for Diverse Learners <i>Lead Presenter: Jennifer Stalls</i> <i>Presenters: DaChelle Gupton, Jamie Stanfield, Emily Beichler, Kaytlyn Cyrus</i> In this session participants will learn how to reach diverse learners through a kinesthetic simulation of the digestive system. Participants will leave understanding how to adapt their current resources to be more engaging and authentic for all middle school students.	Salem 1C
11:30am – 12:20pm	M Engaging Underrepresented Groups through Science Fiction <i>Lead Presenter: Christi Whitworth</i> Exploring science fiction media use in the classroom may foster science learning and career interest with learners from underrepresented groups. We will share stories and ideas from six science fiction attendees regarding the intersection of science fiction and science education. Research Authors: Christi Whitworth, Texas Tech University, chrwhitw@ttu.edu Dr. Gina Childers, Texas Tech University, Gina.Childers@ttu.edu Dr. Rebecca Hite, Texas Tech University, Rebecca.Hite@ttu.edu Samanthia Noble, Texas Tech University, samanobl@ttu.edu Dr. Kania Greer, Georgia Southern University, kagreer@georgiasouthern.edu Dr. Joshua Cruz, Texas Tech University, Joshua.Cruz@ttu.edu	Winston 1B
11:30am – 12:20pm	M Planetarium in your classroom! <i>Lead Presenter: Neil Pifer</i> <i>Presenters: Christine Sudzina Schut</i> This session will present lessons learned and curated from the NC Space Education Ambassador Program. You will walk away with resources for your classroom that are especially useful for 1st, 3rd, 4th, 6th, and Earth Science teachers. Take your kids to the Moon and beyond!	Winston 3A
11:30am – 12:20pm	T Environmental Inquiry as a Specials Rotation <i>Lead Presenter: Laura Wood</i> <i>Presenters: Christianne Stooks</i> At Lincoln Heights Environmental Connections Magnet Elementary, all students attend Environmental Inquiry twice in their specials rotation. Come learn how we get students outside, doing Citizen Science, studying environmental impacts and engaging students in current environmental issues.	Winston 3B

11:30am – 12:20pm	T Explore Earth – Monitoring Microplastic Pollution from Space <i>Lead Presenter: Anne Weiss</i> Projections indicate that by 2050, there may be more plastics in our rivers, streams and rising oceans than fish, leading to calls for a worldwide treaty restricting plastic pollution. To track movements of plastic trash through marine ecosystems, scientists have developed ways to re-purpose NASA Earth-observing satellite data sets. In this session, participants will explore these capabilities as part of various missions that monitor our planet's changing climate within a framework for combining art, geography and social studies with science content to construct a STE[A]M+G science unit.	Salem 3A
11:30am – 12:20pm	T How To Use the North Carolina Zoo As Your Outdoor Classroom <i>Lead Presenter: Beth Folta</i> <i>Presenters: Linda Kinney, Elizabeth Vickery</i> Join us as we share tips, tricks, and best practices for making your next free field trip to the Zoo the best one ever. We offer a variety of free and paid experiences including both guided and self-guided options.	Salem 1B
11:30am – 12:20pm	T North Carolina Bird Atlas - A New World of Birding <i>Lead Presenter: CC King</i> <i>Presenters: Scott Anderson</i> Discover a new world of birding. Move from identifying to observing behavior. Join the NC Wildlife Resources Commission to learn about the NC Bird Atlas, an inventory of NC birds, and a new way to go birding. Your sightings contribute to hundreds of conservation decisions and peer-reviewed papers, thousands of student projects, and help inform bird research worldwide.	Winston 1C
11:30am – 12:20pm	T Tiger Tracking <i>Lead Presenter: Katie Cannon</i> Using coordinates of real tigers in Russia, students are able to track tigers on large scale maps to show their range, how they interact with one another, and it opens up discussion on how we, from worlds away, can help one of the most famous and most endangered animals on the planet.	Salem 3B
11:30am – 12:20pm	T Turning Your Lessons Inside Out <i>Lead Presenter: Stephanie Fiocca</i> <i>Presenters: Jill McGowan, Sarah Carrier</i> Presenters will share research and model outdoor instruction to support teachers as they consider how they will adapt their existing science lessons that include standards-based outdoor learning experiences. In addition, they will provide tips for outdoor instruction.	Winston 3C
12:20pm – 1:30pm	Lunch & Exhibits Another opportunity to grab a quick lunch downstairs and visit the Exhibit Hall	Salem Ballroom 2
12:30pm – 1:20pm	K-12 Science Standards Updates - DPI Grab a quick lunch downstairs and bring it with you to join Gavin for the latest information from DPI regarding the K-12 Science Standards revision. In this session NCDPI Science Consultants will share opportunities to connect and stay up to date with information from K-12 Science. Updates on the K-12 Science Standards revision will be provided, as well as an upcoming schedule to provide feedback on new Science Standards.	Winston 1A
1:20pm – 1:30pm	Spin-a-Wheel Our last Spin-a-Wheel	Salem Foyer

1:40pm – 2:30pm	D	Inquiry with Impact: A Streamlined Process for PBL <i>Lead Presenter: Stan Hill</i> <i>Presenters: Kelsey Canovai, Leslie Russell, Jim Duffey</i> Discover CERTL's proven inquiry-based approach that aims to increase teacher effectiveness. Dynamic learning scenarios with embedded lab activities deliver content in a real-world context that spark student-led discussions. Participants will experience a hands-on student inquiry and receive takeaways.	Winston 1A
1:40pm – 2:30pm	D	Using Escape Rooms to Assess Science Content <i>Lead Presenter: Alicia Yewcic</i> During this session, learn how to incorporate escape room activities that can assess previously taught science content information. You will also understand how escape rooms help to build a collaborative classroom where students need to use team work, critical thinking skills, and problem solving skills to "break" out. Attendees will get to participate in a short escape room to understand how it can be used in your classroom.	Salem 3B
1:40pm – 2:30pm	M	Building Adaptive Problem Solvers Through STEM <i>Lead Presenter: Adam Haas</i> We will focus on the 21st century skill of adaptive problem solving and how to empower students to become stronger problem solvers. Ideas and activities will be shared and created that will strengthen students' critical thinking skills.	Salem 1B
1:40pm – 2:30pm	M	Exploring the Clean Energy Transition and Energy Justice in the Classroom <i>Lead Presenter: Dana Haine</i> <i>Presenters: Jason Carter, Julia Little</i> STEM educators will showcase energy stories from across NC and model the use of an evaluation scorecard as one approach to enhance relevance of learning about clean energy technologies and introduce students to the concept of energy justice.	Salem 1A
1:40pm – 2:30pm	M	Relating PFAS Impacts from My Community to My Classroom: How You Can Too <i>Lead Presenter: Matt Yaeger</i> <i>Presenters: Jenna Hartley</i> My community (Wilmington) has been heavily impacted by per- and polyfluoroalkyl substances (PFAS) in drinking water. Join me as I discuss how I've taken a major community-level issue and designed culturally-relevant and responsive lesson plans for learners in my classroom.	Salem 3A
1:40pm – 2:30pm	M	Talk as a Tool for Learning - Engaging ALL Learners! <i>Lead Presenter: Jessica Enlow</i> Using talk as a tool for learning can be an effective method to engage and support ALL learners! In this session we will explore the many ways 'talk' is culturally responsive and discuss multiple sensemaking protocols that you can bring back to your classrooms.	Winston 1B
1:40pm – 2:30pm	T	Beat the Heat Island: Using Sensors to Explore Extreme Heat at Your School <i>Lead Presenter: Emma Refvem</i> <i>Presenters: Imani Vincent</i> Gain ideas for using environmental sensors and data visualization tools to explore microclimates across a school's campus. These ready-to-implement, authentic investigations prime students for learning about the urban heat island effect and the various solutions to address extreme heat.	Winston 3B
1:40pm – 2:30pm	T	Citizen Science & the City Nature Challenge <i>Lead Presenter: Jennifer Crawford</i> Why do we have to "practice" science when we can actually add to the scientific knowledge database? These are truly real world lessons! (March Mammal Madness, City Nature Challenge, Bird surveys, watching clouds, weather and more!!!!)	Salem 1C

1:40pm – 2:30pm	T	Facilitating Connections to Nature Through Stargazing while Emphasizing Crosscutting State and National Standards <i>Lead Presenter: Katherine Hunt</i> Teachers possess a powerful, freely available, and interdisciplinary tool to engage students...the sky above. Nestled among the stars are written thousands of years of history, and countless scientific concepts if one only knows how to read them.	Salem 3C
1:40pm – 2:30pm	T	From the Field to the Classroom <i>Lead Presenter: Beverly Owens</i> <i>Presenters: Molly Ludwick</i> How can we engage students in making real-world connections to the science curriculum? From digital playlists to citizen science, explore methods of blending indoor and outdoor science. Learn how you can connect your students to scientists and field experts, as well as ideas for implementing schoolyard STEM.	Winston 3A
1:40pm – 2:30pm	T	Sowing the Seeds to Outdoor Learning <i>Lead Presenter: Terri McLeod</i> Kingswood is creating outdoor learning opportunities for teachers and students so they can better align science goals to our interactions with our environment. Students have first-hand interactions with native species and learn the value of biodiversity and a balanced ecosystem.	Winston 3C
2:40pm – 3:30pm	D	Escape Boring Review: How to Use Breakout Rooms to Assess Student Understanding <i>Lead Presenter: Covey Denton</i> When doing formative assessments, how do you assess whether a student just isn't trying or truly doesn't understand? Are there tools in my teaching arsenal that can engage my students to get their best effort and make it fun? It is so easy to turn your existing formative assessments into puzzles that will pique the interest of even your most reluctant learners. Whether you choose to engage your students in an Exit Ticket single puzzle to escape to the next class or you want to transform your classroom into a full blown Escape Room with multiple puzzles, this is the session for you! I'll take you step-by-step through some of my favorite puzzles and show you how to quickly adapt worksheets and assessments you currently use to make escape rooms fun!	Winston 1B
2:40pm – 3:30pm	D	Hands-on activities Electricity Generation and Renewable Energy <i>Lead Presenter: Andrea Gladden</i> <i>Presenters: Denise Renfro</i> This session will showcase hands-on, STEM-based activities that can be used to teach about electricity generation and renewable energy and will include discussion on adapting and extending activities to meet instructional goals for both science and CTE classrooms.	Salem 3A
2:40pm – 3:30pm	D	Make it Matter: Catch up with Heat Transfer and Properties of Matter <i>Lead Presenter: Peter Panico</i> Looking for some fresh new ideas? Engage students with easy to implement instructional strategies, lessons and activities for students to be fully immersed in learning about heat transfer and matter.	Winston 3C
2:40pm – 3:30pm	D	Radio for Help! A Python is Playing with My Micro:bit <i>Lead Presenter: Adam Pennell</i> Come enjoy a fun, hands-on activity. Using the TI-Nspire and Python, we will program a micro:bit to collect, broadcast, and receive data. This session is designed to help teachers engage their students using coding and STEM applications.	Winston 1A

2:40pm – 3:30pm	D	Time to Tinker- "Offering Play as a Way to Learning!" <i>Lead Presenter: Marcy Keener</i> <i>Presenters: Susan Varnell</i> Are you interested in learning more about STEM but not sure what to ask? In this session, be engaged in activities for next day implementation! With everyday materials and technology you will walk away with multiple interactive activities.	Salem 1A
2:40pm – 3:30pm	M	Inquiry-based Learning Student Activity Sampler <i>Lead Presenter: Michelle Pearce</i> Using the Inquiry-based Outdoor Learning workshop materials, participants will experience various activities they can use with their own students. Included are group discussions, reflection time for how each activity can be used, and resources and handouts for professional development opportunities.	Winston 3B
2:40pm – 3:30pm	M	Modeling Biology & Chemistry <i>Lead Presenter: Scott Ragan</i> Modeling Instruction provides PD in secondary science that cultivates teachers as experts on the use of guided inquiry and corrects weaknesses of the lecture-demonstration method. Students learn to develop coherent scientific models that are more meaningful and reflect the true nature of scientific practice.	Salem 1C
2:40pm – 3:30pm	T	Energy from the Sun <i>Lead Presenter: Mark Case</i> <i>Presenters: NEED Project</i> <i>Exhibitors: NEED Project</i> Explore the scientific concepts of solar energy and how we use the sun's energy to produce heat, light, and electricity. Learn student favorite lessons such as making a solar oven, solar art, and solar beads.	Salem 3C
2:40pm – 3:30pm	T	NC's Mountains-to-the-Sea (HYdrology) Trail <i>Lead Presenter: John White</i> This sessions provides a "Water in the Earth System" overview of the hydrologic cycle, societal impacts and related citizen-science opportunities	Winston 3A
2:40pm – 3:30pm	T	STEM Activities & Career Quests at the North Carolina Zoo <i>Lead Presenter: Beth Folta</i> <i>Presenters: Scott Ainsworth, Linda Kinney, Marsha O'Hare</i> Preview our new Zoo app, complete with standards-based STEM activities for each grade level. Explore Zoo careers and utilize virtual tour guides as you bring your NC Zoo field trips into the 21st century!	Salem 1B
2:40pm – 3:30pm	T	Take Me to the River: Using Outdoor Waters to Teach About Water Quality <i>Lead Presenter: Liz Stabenow</i> <i>Presenters: Christine Goforth</i> Do you have any water on your school grounds? Don't worry-even if you don't, we can show you how to use natural water features or create your own. Learn how to collect & identify living organisms to study water quality & participate in citizen science research.	Winston 1C
3:30pm – 3:45pm		Prize Giveaway	Salem Ballroom 2