Every five years, in accordance with the ASTE Statement of Operating Procedures (SOPs), the Membership Committee, Professional Development Committee, and Equity Committee are charged with conducting a “Grand Member Survey”. The SOPs indicate that the survey should be related to “professional development, equity issues, and other matters important to the organization” and that results should be analyzed in order to identify ways to “best serve the professional development needs of ASTE members”.

In 2020, Board Member Ian Binns, then chair of the Membership & Participation Committee, led the development of that year’s Grand Member Survey. The survey was created from scratch, as no previous survey copies had been retained and passed down. Feedback and discussion among the board at the time focused on identifying what kind of information would be valuable for the leadership to know, and how that
could be used to help inform our decision-making, specifically with regard to two identified strategic priorities: Diversifying the membership and leadership in ASTE; and providing a leading voice in conversations about science teacher education research, policy, and practice. While not perfect, as some respondents commented, the survey nonetheless represented a good faith effort to gather the voices of our members to guide future action. A summary Report of the 2020 Grand Member Survey is now available to the leadership and broader membership of ASTE.

While the survey provides some key insights, it also raises questions—many of which draw attention to the limits of our institutional memory. Institutional memory is the collective knowledge and learned experiences of a group that provide an understanding of the history and culture of the organization—particularly the reasons behind certain decisions or procedures. As turnover occurs among group members, these concepts must be transitioned and passed on from one member to the next, along with records. Consider the following questions:

- How representative is the sample of respondents compared to our overall membership?
- How do these responses compare to past responses—what trends exist and what information is new?
- What steps were taken in response to the last survey, and what do the current survey responses indicate about our progress as an organization?

These are questions that I must admit we cannot answer. Nor can I respond to member queries about historical patterns and trends in representation among the ASTE leadership.

One aspect of institutional memory we lack is an accurate and historical record of our membership and leadership. Though we do have a historical list of past ASTE presidents, there is not a similar record of the Board Leadership over time—nor of member involvement in other appointed positions. Additionally, our membership database does not allow us to query information such as how long someone has been a member of ASTE (which foiled my attempts to reach out to congratulate members who reached membership milestones). Another aspect of institutional memory we lack is related to the archiving of documents. While those of us who have been long-time members of ASTE can certainly remember previous Grand Combined Member Surveys being deployed in previous years, as an organization we have no record of the surveys nor reports of the outcomes in our archives. It’s clear that we need better systems in place in terms of retaining key documents and passing those on to future leaders.

At the upcoming summer board meeting, we will be discussing the Report of the 2020 Grand Member Survey and developing action items informed by the responses. Some steps are already being taken—for example, our Membership & Participation and the Equity committee chairs have been collaborating with our Director of Electronic Services and Executive Director to conduct an overhaul of our membership form and records. When you renew your membership at the end of the year, you will be asked to provide additional information to help us better understand who are members are, and whether we are achieving our goals of diversifying our membership and leadership. The Conference Program Coordinator and...
Conference Planning Committee Chairs have also taken steps to create a more equitable and accessible process for members to get involved in serving as Thread Coordinators, Proposal Reviewers, and Session Providers.

I’m inspired by the Board’s responsiveness to these issues, and the ways in which they are reaching across committees to collaborate to find creative solutions. What ideas do you have? How else can we, as an organization, overcome our institutional memory loss? How might a better understanding of our history help us create a better future for ASTE? I invite you to use this anonymous survey form to submit your comments and questions directly to me.

**Congratulations to all the newly appointed ASTE Thread Coordinators**

- **College & University Science Education:** Chairs: Leslie Bradbury and Katie Green
- **Curriculum, Pedagogy, and Assessment:** Chairs: Kimberly Lott and Laura Schisler
- **Educational Technology:** Chairs: Jesse Wilcox and Colby Tofel-Grehl
- **Equity & Diversity:** Chairs: Terri Hebert and Preethi Titu
- **Ethnoscience and Environmental Education:** Chairs: Sarah Carrier and Sarah Haines
- **History, Philosophy, and Nature of Science:** Chairs: Ryan Summers and Alister Olson
- **Informal/Out-of-School Science Education:** Chairs: Michael Dentzay and Michelle Forsythe
- **Policy, Advocacy and Reform:** Chairs: Joanne Olson and Daniel Carpenter
- **Preservice Science Teacher Preparation-ELEMENTARY:** Chairs: Karl Jung and Tina Vo
- **Preservice Science Teacher Preparation-MIDDLE/SECONDARY:** Chairs: Stephanie Phillip and Rachel Sparks
- **Professional Development for Science Teacher Educators (Workshops):** Chaired by the PD Committee*
- **Science Teacher Professional Development-ELEMENTARY:** Chairs: Selena Bartels and Wendy Ruchti
- **Science Teacher Professional Development-MIDDLE/SECONDARY:** Chairs: Patrick Enderle and Debbie French
- **STEM Education:** Chairs: Ingrid Carter and Emily Dare
- **Student Learning P-12:** Chairs: Richard Lamb and Stephen Thompson
2022 ASTE International Conference

When: January 6-8, 2022
Where: Greenville, South Carolina

Get ready for the 2022 ASTE conference in Greenville, South Carolina! We will once again be gathering in person with opportunities to reconnect with friends and colleagues, network, present your cutting-edge research and innovation, and learn from one another. Plans for the conference are still emerging. We engaged the members for ideas about keynote speakers and the results will be announced in the next newsletter as will be the pre-conference field trip and the post-conference Saturday afternoon food and drink tour. So stay tuned.

Theme: Why Science Education?

Physicist James Trefil suggested that before we can answer the question of what constitutes good science education and how to teach, we must first consider the why. As we simultaneously heal from the pandemic, consider the impacts of climate change, address social justice, and learn from robots exploring the surface of Mars, we have chosen as the conference theme “Why science education?” as an invitation to reflect upon and explore the why, what, and how of science education in the 21st Century.

Submit your proposal here: https://theaste.org/meeting/proposal-submission/

Destination: Greenville is located in the Upcountry of South Carolina and is an inviting location for our gathering.

- The Hyatt Regency is located at the top of Main street with over 100 restaurants, galleries, coffee shops, breweries, and boutiques outside the doors of the hotel;
- Three museums on Heritage Green 0.2 miles from the hotel including the Children’s Museum of the Upstate;
- Falls Park 1-mile away featuring a 32-acre park and 40-foot waterfall; The hotel is a short 15-minute ride from the airport and there will be a free airport shuttle;
- Breakfast is included.

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2022 ASTE International Conference

When: January 6-8, 2022
Where: Greenville, South Carolina

Peace Center for the Performing Arts and Main Street.

Greenville is a star attraction with Main Street earning Forbes Magazine top 10 best American downtowns, and both Parade magazine and Travel + Leisure's top 10 best Mains Streets. The New York Times called Greenville “a national model for a pedestrian-friendly city center.” Zagat described Greenville’s food scene as the number 1 under-the-radar Southern food destination and Esquire describes Greenville as “the next big food city of the South” offering many destinations for social gatherings.

In addition to the face-to-face conference there will be virtual option that includes live virtual presentations on Friday, attending committee meetings, and the key events including the keynote speaker and the Saturday business meeting.
2021 ASTE Awards

Contributor: Jennifer Stark

The ASTE Awards Committee is now accepting nominations for Awards I, II, and III – Science Education Career Awards. These awards recognize the personal achievements and professional contributions of ASTE’s members. Any member of ASTE (including graduate students) may submit a nomination. The nominee should be informed about the award nomination and nominators must follow the submission guidelines available at [http://theaste.org/awards](http://theaste.org/awards).

Descriptions of each of these awards are provided below but are also available [online](http://theaste.org/awards).

- **Award I** – Outstanding Science Teacher Educator of the Year (Two Levels). The purpose of these awards is to recognize the individual achievements and contributions of ASTE members. Level One is for ASTE members in the first ten years of their career. Level Two is for ASTE members beyond the first ten years of their career.

- **Award II** – Outstanding Mentor. This award honors ASTE members who support and encourage pre-service and in-service science teachers and/or new science teacher educators entering the profession. It also seeks to recognize the valuable contributions of mentors to the profession of science teacher education.

- **Award III** – Outstanding Longtime Service to ASTE. This award recognizes outstanding service by a long-standing member of ASTE. For this award, service is defined as work accomplished over 15 consecutive or nonconsecutive years by a committed ASTE member in an effort to address issues, goals, and actions that have intellectual merit and broader impact on science teacher education, while simultaneously serving the needs of ASTE members.

**Submissions for Awards I, II, and III are due June 1st.** The Awards Committee Co-Chair will contact nominees shortly after the June 1 deadline to confirm receipt of the nomination materials.

**Nominations for Awards I, II, and III must be submitted online.** To do so, go to [http://theaste.org/awards](http://theaste.org/awards), log in, and then click on the highlighted link “Nominations must be submitted online.”

If you have any questions about Awards I, II, or III, please contact the Awards Committee Chair, Jennifer Stark (jstark@uwf.edu).

Sincerely,
Jennifer Stark and Corinne Lardy
ASTE Awards Committee, Chair and Co-Chair
In order to encourage ASTE members to share ideas and start conversations that we hope will continue online and in person, the Newsletter Editor invites ASTE members to write a Newsletter Op-Ed piece about something they are passionate or curious about and want to share with the rest of ASTE. I hope this begins a conversation that can can be continued via Facebook, and/or Twitter.

If you would like to contribute your own piece for future issues, submit it to us via Newsletter@theaste.org.

Learning to Teach in the Midst of the COVID-19 Pandemic

By Amy Trauth

On March 13, 2020, the Delaware governor ordered schools to close for two weeks. When they reopened, schools scrambled to resume instruction virtually. In some cases, instruction included synchronous sessions; in others, instruction was completely asynchronous. The roll-out of virtual teaching and learning was chaotic. Many students did not have computers or tablets to access online assignments from home. Wifi access was, and remains, uneven in the state. In the rural areas, wifi accessibility has been spotty or non-existent, even for those who can afford service. Teachers struggled with engaging students in an online forum. Students struggled to remain focused at home in front of a computer screen, away from their peers and school communities.

Teacher educators also had to shift their practices in order to support preservice teachers (PSTs). Flipped plans from helping PSTs prepare face-to-face lessons for their field placements to supporting them in learning virtual engagement strategies, discipline-specific educational technologies, and planning remote lessons have been common (Wu, Pearce, & Price, 2020). Others have indicated the need to use specific pedagogies for effective online teaching such as clear, organized use of the school’s learning management system; attending to students’ social and emotional health; and using culturally responsive teaching practices and Universal

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Design for Learning Guidelines to meet students’ learning needs in equitable, inclusive ways (Chertoff & Thompson 2020; Moorhouse, 2020). It’s likely that some of these changes to science teaching and learning will remain once the pandemic ends (Fackler & Sexton, 2020).

Preservice teachers at various stages of their academic programs of study were caught in the nexus of shifts in teacher education and K-12 education due to the pandemic. Between spring 2020 and now, many preservice teachers scheduled for clinical field experiences and/or student teaching have faced disruptions. In this commentary, I highlight the voices of two novice teachers and reflect on my own experiences as a teacher educator during this time.

Katie and Julianna are undergraduates in secondary education at the University of Delaware. Katie is placed in a 9th grade Physical Science classroom, and Julianna is placed in a 10th grade Biology classroom. Spring 2021 is the final semester of their undergraduate programs before graduation. Their student teaching experience this semester is similar to that of other preservice teachers placed in schools across the state – there has been a mix of fully remote and hybrid teaching. In many ways, hybrid teaching has been more of a balancing act than traditional face-to-face instruction. In our district, students have the option of attending school in-person two days per week or remaining fully online. This means that both Katie and Julianna are learning to teach science to students in classrooms and online simultaneously. They must plan lessons that accommodate learners both at home and in the classroom and they must be able to effectively implement those lessons synchronously with students who are sitting in the classroom and those logged onto the district’s virtual conferencing software.

When asked about their experiences with teaching science in a hybrid setting both indicated they gained more than they lost in student teaching during the pandemic. Katie told me, “Teaching in a hybrid setting changes every day. I learned a lot about technology that I probably wouldn’t have learned in a normal student teaching experience.” She also

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said, “I’m entering teaching during probably the hardest time to be a teacher, yet I still get up every morning excited to go to school. There have been difficult moments, for sure. Sometimes students won’t talk online or complete their assignments, but my cooperating teacher has been a great mentor and we have worked through tough teaching situations together.” Julianna shared similar sentiments: “Student teaching during the pandemic has taught me how to adapt, be flexible, and it’s pushed me to learn how to use technology effectively in teaching. I’ve learned a lot from my cooperating teacher about how to plan lessons and manage students in this setting.” As the science instructional coach for the district, I have watched many highly experienced teacher-colleagues struggle with hybrid teaching and maintaining student engagement. Frustration, grief, sadness, and anger have been common emotions amongst my experienced teacher-colleagues, so it seems miraculous to me that Katie and Juliana have such a positive outlook on their own experiences.

All has not been completely rosy, however. In 2020, both Katie and Julianna were placed in schools for field experiences. As a result of school closures, those field experiences were either canceled completely or relegated to fully online teaching. Although empirical evidence is mixed, some research has indicated the duration and quality of student teaching experiences have a significant influence on novice teachers’ self-efficacy and their instructional preparedness (Ronfeldt & Reininger, 2012; Ronfeldt et al., 2013). Both Katie and Julianna indicated that they missed relationship-building with all of their students, not just the few that showed up for in-person learning. They also both indicated to me in separate conversations that their experience with student teaching during the pandemic highlighted the need for preservice preparation to include more and earlier field experiences. Katie stated, “It’s great to have a deep understanding of my content area, but I’m highly unlikely to use the majority of content I have learned during my undergrad program in my teaching. We need more courses in education that are focused on teaching in actual classrooms.” Similarly, Julianna said, “Secondary education majors need to be in the classroom earlier. Course assignments and readings in education classes are helpful, but there’s nothing like being in the classroom, learning how to teach alongside a teacher.” Perhaps we, as teacher educators, can take advice from these young women by finding ways for our preservice teachers to have proximal connections with teachers and students earlier and more often in preservice preparation. Given the wide variability of the current educational landscape, it seems like a small request from future teachers who will serve students in the post-pandemic era.

References


Have a topic you are passionate about and want to bring to the attention of the ASTE community?

Submit it to us via the Newsletter@theaste.org.

Grant Report

Game on! The gamification of predator & prey relationships for elementary teachers using Jenga

Contributor: Dr. Dieuwertje J. Kast & Jasmin Sanchez

Game on! Science can be so much more exciting for students when the content is presented in a gamified way especially for students in the elementary grade levels. Some science content is harder to gamify than others. Take the idea of predator and prey relationships in different habitats. You may have created an activity where students run around as various predators and prey and quantified their interactions but it may have been difficult to directly link it to the NGSS standards relating to human impact on the environment. The way we solved that problem is

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we took the idea of predator and prey relationships in a food chain and converted it into a Jenga game. The jenga were decorated or painted to represent each of the trophic levels in a food chain system including primary producers & primary, secondary and tertiary consumers. Then human impact cards were created that would either positively or negatively affect the food chain. If there were too many negative impacts on the food chain, and too many pieces of the jenga were removed, the food chain and the jenga would crumble.

We were inspired by OSU’s & Cabrillo Marine Aquarium’s “Whale Jenga Food Web Game” and used it as a basis to describe trophic levels in various habitats. Their game was based on the ocean food web and has the primary producers of phytoplankton (21 blocks in green), the primary consumers of zooplankton (9 blocks of blue), secondary consumers of fish or krill (9 blocks of orange), and has the tertiary consumer of a whale (6 blocks glued together). The human impacts on this environment ranged from oil spills to plastic pollution and more and students could see the harmful effects they had on the food chain as various pieces of different trophic levels were removed.

Taking this idea, we created jengas for many different habitats including the deep sea. The deep sea habitat is unlike many other habitats because its primary consumers are not plants or phytoplankton that depend on the sun and photosynthetic processes but it is instead bacteria that depend on chemosynthetic processes. The bacteria formed the base of this food chain as the primary producer and similarly also has 21 blocks like above. The next level was tubeworms (9 jenga blocks) who have a symbiotic relationship with the bacteria and acted as primary consumers. The next trophic level up has crabs (9 blocks) and they would eat parts of the tube worms (secondary consumers) and the apex predator of this food chain was an octopus (6 jenga blocks). We had the students and teachers we taught think of human impacts that would negatively impact this environment but also what were some natural events that would positively impact this environment as well. The teachers came up with scientists that explored the deep sea removing various organisms for scientific study and therefore would remove various jenga pieces. We also had natural events like hydrothermal vents appearing and causing an influx of nutrients into the deep sea system which allowed for a positive interaction to happen and allowed teachers to put pieces back.

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We have introduced this gamified food chain & predator/prey interaction with teachers during virtual professional development sessions this year and we've also brought it to Spanish speaking families in the Los Angeles (LA) area. During the month of April, the Joint Educational Project (JEP) STEM Education Programs hosted a teacher professional development (PD) session with an organization called City of STEM and at a local LA-based elementary school called Vermont Avenue Elementary.

The City of STEM events are LA's largest celebration of STEM that usually takes place during the entire month of April with a series of amazing events, panels and activities throughout LA County. The City of STEM had a PD day and created that event to support educators who helped inspire young scientists to become the next generation of scientists. The programs chosen to distribute content demonstrated innovative and unique topics for STEM educators, and the day itself was hosted by the LA County Office of Education. JEP STEM had a live zoom session that was also freely broadcasted and livestreamed on the City of STEM Youtube channel. <To watch the PD go to minute 2:16:31 to 2:47:47>

To increase accessibility to a wider audience, the City of STEM hosted a Spanish Science Channel Day for the public of LA. JEP STEM partnered with the City of STEM by translating our Deep Sea Jenga activity into Spanish and presenting it to the general public that tuned in. To translate the activity, we wanted to be cognizant of how deterring jargon can be so we simplified the lesson and practiced it several times with different monolingual (Spanish speaking-only) individuals. Besides mostly communicating with visuals, we also practiced the presentation with two individuals, a four year old and a person older than forty, who had no previous knowledge of the deep sea. Both individuals were able to follow along with the presentation and expressed their curiosity through their questions as did the viewers.

Reflections
After our three sessions, we reflected upon what we had learned from our professional development sessions. In general, Zoom professional development sessions can be a difficult setting to engage teachers in so we typed up teacher responses directly into our slides to voice and document all of their contributions either verbally or in the chat. For the City of STEM events, there were some delays on the live-stream and so it was difficult to answer all of the questions in real-time. In the future, we would like to be able to send some of these supplies to teachers directly so they can create their own habitat themed food web at home and have them come up with the human impacts on the environments that affect that habitat.
Regional Updates

SWASTE is preparing for an in-person conference in Fall of 2021. We are soliciting member input along with session proposals early this summer. SWASTE members please complete the interest and availability survey found here.

Meanwhile, we hope to be able to safely gather together at Sam Houston State University in October for Bees, Trees, and Breweries themed 2021 Conference. We are planning to meet at The SHSU Woodlands Center, in Conroe, TX on Friday and Saturday, October 22 and 23rd. The conference hotel will be the Marriott Springhill Suites in the Woodlands which is less than a mile from TWC and right on I45 and walking distance to shopping centers. For Friday social events, we will meet at the B52 Brewery for outdoor dining. Dr. Matt Fuller will speak at our luncheon on Saturday about the role of honeybees in our ecosystem and his Fuller Farm. In addition to presentations by SWASTE members, Eric Wunderlich of Project Learning Tree will conduct a session on Project Learning Tree and outdoor education. You can find conference updates and news on our site.

SWASTE is also continuing our Graduate Student Showcase this year. Southwest Region graduate students can submit a video highlighting their current, ongoing, and future work here to be highlighted on our website here. We look forward to showcasing the outstanding work of the graduate students of SWASTE.

Kelly Feille
Regional Director
University of Oklahoma

For updates check the regional websites here

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Southeastern Region (SASTE)

Please join us either virtually or in Downtown Safety Harbor, FL on Saturday, October 16, 2021. Proposals for our first hybrid annual meeting are open!

The Conference:

- The theme for this year's annual meeting is: Augmenting Reality with Informal Science: The Bending, Blending and Emboldening of the Formal Classroom for the Imagination Generation.

- We will offer a combination of virtual and face-to-face presentations. You will select your modality in the proposal submission form.

- Proposal submissions will be accepted until midnight July 1, 2021

  Submit your proposal here.

Already plan to attend face to face and ready to book your room?

Book early due to city events occurring that same weekend potentially causing the hotel to book up (note: you are able to cancel your reservation with no penalty up to 3 days before check-in date).

- Hotel: Safety Harbor Resort and Spa

- $129 per night, the $16 resort fee is waived

  Do not book online, call the hotel directly at 727-726-1161 during business hours (9:00am – 5:00pm EST). Request to speak to someone “at the front desk of the hotel” to avoid reaching the call center, which does not have our group information.

- We have a block of rooms for Friday, October 15th and Saturday, October 16th.

- When you call, provide the group code: 39M2J1 (or Southeast Association for Science Teacher Education annual conference)

- If you have any issues, email MelanieKinskey@gmail.com for help.

Mentoring Opportunity

Interested in having a mentor or serving as one? We recently kicked off our mentoring program and would love you to join! A SASTE mentor can help their mentee identify and develop conference proposals (for SASTE and other conferences), offer job search advice, help establish a syllabus/research agenda, or assist with any other topics that come up! If you are interested in either role, please complete this Google Form.

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We are planning to hold the Fall Mid-Atlantic ASTE conference in person in Blowing Rock, North Carolina at the Blowing Rock Conference Center. Mark your calendars to arrive on Wednesday evening, September 22, 2021 with the conference all day Thursday and half-day on Friday, Sept. 23-24. Please arrange your lodging through BRCC using this link.

Conference registration will be $125 ($100 for graduate students). This will include payment for our use of the conference center facilities, plus 5 meals (3 on Thursday, 2 on Friday), snacks and beverages between sessions, and a Wednesday/Thursday evening campfire. To register, use this link.

Conference proposals will be due July 1, 2021 and can be submitted here.

Interested in an extended stay for an Ashe County field trip? Hike Mt. Jefferson with an Ecologist, tour Ashe County Cheese, and drink some local brews, all while soaking up the mountain air. For more details, please go here.

Your conference planning team: Margaret Blanchard (NC State); Leslie Bradbury, Lisa Gross, and Rachel Wilson (Appalachian State)

Questions? Please contact Rachel Wilson (wilsonre3@appstate.edu), MAASTE Regional Director.
Please spread this wonderful news! The ASTE Graduate Student Forum Leadership Team is planning the first ever ASTE Graduate Student Mini-In-May Conference! And... (drumroll), it’s FREE!!! We have an amazingly dynamic panel of speakers and presenters, many who have been honored with their excellence in mentoring graduate students. We are excited to be launching this event, and we are looking forward to building community among graduate students and preparing them for their next steps in writing, the job market, and self-care. All of the details are found in the flyer (and link/QR code).

A Note from ASTE Professional Development Committee Chair
Anyone interested in working with the Professional Development Committee on creating webinars for ASTE members, please email Andrea.Burrows@uwyo.edu
New Resources and Other News

Larry Nielsen launches conservation history blog –

*Today in Conservation*

Giving a speech soon and need the perfect way to start your remarks? Looking for a topic to energize a 4-H, scouting or day-camp session? Want a great subject for your classroom bulletin board? Wondering how to get students to take a more active role in class?

Larry Nielsen’s new website, *Today in Conservation*, is the resource you’ve been waiting for (the url is todayinconservation.com). *Today in Conservation* contains a story—or two—for every day of the year about an environmental or conservation event that happened that day, written in Nielsen’s engaging style. Here’s a sample, one from each month:

- January 11 – Aldo Leopold was born (1887)
- March 22 – World Water Day is celebrated annually
- April 14 – The “Black Sunday” Dust Storm occurred (1935)
- May 7 – Nature’s Best Moms—a Mothers’ Day special
- June 20 – Australia protected the Great Barrier Reef (1975)
- July 28 – Beatrix Potter, Author and Conservationist, was born (1866)
- August 7 – Elinor Ostrom, Environmental Economist, was born (1933)
- September 25 – Pope Francis addressed the UN about the Environment (2015)
- October 18 – The Clean Water Act was established (1972)
- November 14 – US crushed confiscated elephant ivory for first time (2013)
- December 15 – Chico Mendes, Brazilian rainforest advocate, was born (1944)

Each day’s entry includes a short description about the day (400-600 words), photographs and artwork depicting the person, place or thing (all in the public domain, so they are free to use), and several references for more information (and to lead students to more research).

Larry Nielsen retired recently from North Carolina State University, where he had been dean, provost, and distinguished professor. In 2020, he received the American Fisheries Society Excellence in Education award. Nielsen says this about the website:

“This has been a labor of love, a way to give back after 40 wonderful years as a professor and natural resource professional. Over my years of teaching general classes about natural resources and the environment, I gathered together a calendar of significant events in conservation. After retiring, I was able to fill in the calendar, all 366 days. Some days I had to stretch the definition of conservation a bit, but, hey, if we can’t have a little fun, we’re not doing it right!”

The array of topics ranges broadly. Many days feature an important person born on that day, but other days feature the establishment of a national park or other protected area, or the founding of an environmental

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organization. Want to read about the first Ford Mustang rolling off the assembly line, or why he put such a thing in an environmental calendar? Try April 17. How about when "The Lorax" was published and what Dr. Seuss says about his perspective on logging? Look up August 12. And what do you suppose Nielsen covers on February 29? Nature's great leapers, of course!

The website also contains special features that cover a longer time-frame. For example, Nielsen highlights African-American conservation leaders for Black History Month. New special features are added at least monthly, but also whenever conservation history provides a unique “teachable moment.”

*Today in Conservation* is available (for free, of course) at [todayinconservation.com](http://todayinconservation.com). To contact Larry Nielsen for more information, please email him at lnielsen409@gmail.com

**Contributor: Kristin Cook**

**Step Into STEAM, Grades K-5**
Authors: Sarah B. Bush & Kristin L. Cook

*Step Into STEAM, Your Standards-Based Action Plan for Deepening Mathematics and Science Learning* guides and inspires K–5 educators through designing and implementing STEAM inquiries that align purposefully to key mathematics and science content and practices.

[Check out this book here!](http://stepintosteam.com)

**Contributor: Michelle Schpakow**

**Mapping the Way from Teacher Preparation to edTPA Completion: A Guide for Secondary Education Candidates**
Authors: Jason C. Fitzgerald & Michelle L. Schpakow

About This Book
As nationwide calls for educational rigor and accountability continue across the U.S., many states have made the edTPA®, a teacher performance assessment, a requirement for teacher certification. While it is designed to promote teaching excellence, the edTPA® can drive already-stressed teacher candidates to their breaking point, as it places them in an unfamiliar classroom and asks them to quickly display their knowledge and savvy.

This book is here to help teacher candidates not only survive the challenge of the edTPA®, but also thrive. It maps out precisely what steps aspiring secondary education teachers should take to ensure successful completion of the edTPA®. Demystifying the language used in the assessment, it uniquely connects edTPA® requirements with what teacher candidates learn within their teacher preparation programs, showing them how the assessment relates to what they are already doing in their classrooms. The strategies in this book draw on both academic research and practical experience to guide student teachers as they plan for their edTPA® portfolios and for their teaching careers beyond.

Read more about this book [here!](http://mappingtheway.com)
Contributor: Steven J. Maier

During the 2020-2021 academic year, Northwestern Oklahoma State University academic departments were charged with participating in a new Recruitment and Retention Forum. This forum’s purpose is to share and generate new ideas across campus to curtail attrition and assist with recruitment. While departments are typically regularly engaged in these efforts, this effectively opened the door further for departments to take an increased ownership of recruitment for their individual programs. Pulling from work done as part of a previous PhysTEC Recruitment Grant and resources/strategies compiled at Get the Facts Out, NWOSU’s Department of Natural Science took this charge to heart and initiated a new recruitment campaign. Some of the results of these efforts include:

- Development of a new prospective students webpage
  - An informational form students can complete
  - Information about scholarships including information not specific to NWOSU
  - An informative college planning spreadsheet students can use to prepare for college even if not attending NWOSU

- Increased Twitter traffic @NWOSUscience #NWOSUscience

- Development of several branded and science themed postcards (here's a template!)

- Gathering and compiling names of prospective students attending campus functions for making contact
  - 1st contact is a handwritten postcard general to “science,” with an invitation to share their interests using an online form
  - 2nd contact is a follow up handwritten postcard specific to their interests (such as Science Education!)
  - 3rd contact is sending prospective students a letter on letterhead with a free gift (branded 3D printed keychain or Post-It notepad)

- Among science faculty, advisors, and students: Re-emphasizing that “Science Education” as a degree plan and career choice is commensurate with those pursuing graduate studies in chemistry or medical school

- In the Department of Education, re-establishing connections with our graduates and setting up mentorship programs
  - Supporting data collection and collective action-research
  - Encouraging K-12 teachers to promote their own profession as they discuss careers with their students
  - Offering participants in the mentorship program scholarships for completing graduate coursework

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We took the approach that there's not a single one-time “big” thing than can be done to significantly impact retention and recruitment. Instead, it's a collective of sustained smaller acts that lead to long-term change. Admittedly, this is still a work in progress and we're not running as efficiently as we could, but the cogs are in motion! We welcome input from others and their stories of recruitment and retention!

Contributor: Valarie Akerson
Globalizing Rural Science Teacher Preparation in the United States

We are seeking to work with other science teacher educators to prepare preservice teachers to globalize rural science education. To that end, we have organized a one-year program to pull together a small group of science teacher educators that teach in programs that place a significant number of preservice teachers in rural classrooms. This first year will include several online webinars/meetings (presentations by leaders in the field), action research studies on infusing globalization into our teacher education course(s) during the 2021-2022 academic year, and peer support. We have secured a small grant from the Longview Foundation to cover the costs associated with this first year. The funds will cover our workshops/training, travel to IU for one in-person symposium, and a small amount of travel funds for sharing the experiences from the project. The timeline is:

- **August, 2021:**
  - Summer Virtual Workshop 1: Global Competence in Science Teacher Preparation
- **August-December, 2021:**
  - Webinar 1: Action Research
  - Webinar 2: Follow-up on Global Competence
  - All participants post action research plans on website. Peers provide feedback.
- **January-May 2022:**
  - All participants implement action research projects
  - All participants analyze action research findings
- **June-July 2022:**
  - In-Person Symposium: Sharing Findings
  - All participants give presentation and provide feedback on the presentations of peers
- ~**July-December, 2022:** All participants complete at least one individual conference presentation
  - All participants complete at least one individual brown bag at their home institution

We also plan to work together to publish all of our experiences and present our experiences after this first year in an edited book.

If you are interested in globalizing your teaching with us, as well as others who have similar goals, we would love to talk further! Please email Gayle Buck gabuck@iu.edu, Valarie Akerson vakerson@iu.edu, and Vesna Dimitrieska vdimitri@indiana.edu for more information and the process for applying.
I am an Assistant Professor in Science Education at Howard University School of Education. I graduated from Teachers College, Columbia University with a Doctorate in Science Education (Ed.D.). Prior to this, I taught high school science for sixteen years; the last twelve years were spent at one high school in New Jersey.

**Bridging theory and practice** has always been important to me. With every research idea or topic, my next thought is - what does this have to do with the classroom? So, when someone says “include diversity,” it is very important to me to make sure that this means more than showing video clips with Black people in it. It means highlighting the assets, cognitive resources, and science capital of Black people.

I’ve come to realize that because we’ve been highlighting what we perceive to be the cognitive and cultural resources of White people, many of us have not taken the time to reflect on what this means for Black people – in K-12 science and in science education. The curriculum, and particularly the K-12 science curriculum, has failed in giving all children an opportunity to appreciate the cultural and cognitive resources and capital that Blacks brought to the Americas, particularly to the United States of America. This is the premise of my work. My current NSF funded project, Creating and Evaluating Culturally Representative STEM Curriculum Supported by the Next Generation Science Standards, has given me an opportunity to do something unique. My vision for this project is to go beyond symbolism. Symbolism is very important to our culture and extremely important to science – more than we know and more than we imagine or might admit to. I don’t plan to settle for anything less than complete embeddedness.

**Perhaps it was my experience** as a classroom teacher when asked to include “diversity,” that led me here. No one knew what this meant. One teacher created a student chant for when administrators passed, “Diversity is Awesome!” Others showed video clips of Black scientists. Apparently, I was supposed to know what this new buzzword “diversity,” meant because I am Black. I found it difficult to simply show video clips with no relevance to the topic under study and without meaningful implementation. I am amazed that something so important could be so easily set up for failure, especially when the bridge between theory and practice is not clear. **Perhaps it was because I was never one for cliches** and struggled with the idea that I was required to make this seem so ceremonial – so unimportant, so irrelevant, and so fleeting to the topic under study.

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Today, I am perfectly situated in an **Historically Black College and University (HBCU)**, Howard University – a place that empowers Blacks academically and emotionally. HBCUs are the second largest producer of undergraduates who go on to produce doctorates (see Quinlan 2021 below). HBCUs were established to educate Blacks when universities would not accept them (see Quinlan 2020). What better place to derive meanings and narratives, and understand what makes Blacks successful, and what is important to Blacks? As Dr. Rankins (retired NSF program officer) reminded us in her recent talk – HBCUs do for Blacks what White institutions have always done for Whites. This is what I set out to do with my science curriculum work – that in K-12 science, cultural representation of Blacks should do for Blacks what White representation has done for Whites.

My recent May 2021 publication in *Research in Science Education* highlights the importance of setting and perspectives in my article titled: “**Creating an Instrument to Measure Social and Cultural Self-efficacy Indicators for Persistence of HBCU Undergraduates in STEM**”. The entire article can be viewed using this [Springer link](https://springer.com) or downloaded from your institution.

My goal is twofold – to contribute to research but most importantly, to bridge theory and practice – to include the narratives of Blacks, particularly African Americans and all Blacks that live in the United States. My objective, how can we include the narratives and lived experiences of Blacks in a way that benefits all? If we can have a “Science for All” that was built on White narratives, why can’t we have a “Science for All” built on Black narratives? I’ve spent a great deal of time in professional development learning about science implementations. I capitalize on my own learning and use my own internalizations from implementations of best practices. See link to my institution profile for a list of [my articles](https://myinstitutionprofile.com).

After pursuing an understanding of best science pedagogical practices through implementations (see earlier publications), I was ready to create my own; I began by creating African Rock Art Image Analysis, first presented at the 2018 ASTE workshop titled: [African rock art image analysis – using African rock art to explore science and culture](https://myinstitutionprofile.com). I was inspired by my involvement with Arizona State University’s Mars Student Imaging Project. If NASA scientists could use images as data and students can use this to learn science, why can’t we learn science from the images of art created by our Black African ancestors? Consequently my publication in the *American Biology Teacher*, [An Interdisciplinary Investigation of African Rock Art Images to Learn about Science and Culture: Blending Biology, Geology, History & Ethics](https://myinstitutionprofile.com), provides some background for practitioners. I am currently working on two culturally representative science content articles for practitioners that will be published in 2022.

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This summer I plan to complete the final stages of the unit plan for my NSF funded project. I hope to present some of this work at ASTE’s Annual Conference. Please use this link if you’d like to receive updates or participate: https://forms.gle/YzS2xCBNHtuK5uQo8

**Launching of Keystone Passage Chapter Book Series, ages 5-12.** My role as a researcher became enmeshed with my role as a mother. I came to see that representation of the narratives and lived experiences of Blacks in chapter book series for early readers was equally scarce as in science - as was representation of Black authors. I launched a new chapter book series – Keystone Passage and my first book, To Africa and Back. My second book will be launched soon, in June 2021. In this series I blend science, history, culture, reading, and Black narratives and lived experiences. More importantly, I have decided to self-publish for reasons that some might understand and that I might one day explain in my research or talks.

![Image](image-url)

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Research Interests: Situating the lived experiences and narratives of Blacks in the United States and Black heritage, in the STEM curriculum. Using applied cognitive theory, schema theory, and argumentation in science. Highlighting the cognitive resources of Blacks and other people of color in science education research.
Journal Announcements

Don't forget - **Submit your articles** about technology, science, and teacher education today!

**Check out the new articles in CITE Journal Science** -

Current CITE Issue: [https://citejournal.org/publication/volume-20/issue-4-20/](https://citejournal.org/publication/volume-20/issue-4-20/)

ASTE sponsored Science Education section: [https://citejournal.org/category/science/](https://citejournal.org/category/science/)

Co-editors Andrea Burrows and Helen Meyer encourage ASTE members to submit articles and reach out about potential article ideas. They ask that the authors **check for a clear connection to science education and technology** (e.g., pre or in-service teacher education or college-level faculty). Additionally, they encourage authors to **embed interactive technology** in the manuscript (e.g., links, video, audio, animation).

ASTE sponsors the CITE Journal Science Education section and they would like to see your work highlighted!

Email Andrea.Burrows@uwyo.edu or Helen.Meyer@uc.edu with any questions.

**Contributors: Sarah Boesdorfer and Rebekka Darner**

Greetings ASTE colleagues,

We are happy to announce the latest issue of Innovations in Science Teacher Education has been released. If the link is unavailable to you, you can also access the issue by copy/pasting this URL into a search bar: [https://innovations.theaste.org/publication/volume-6/issue-2-21/](https://innovations.theaste.org/publication/volume-6/issue-2-21/).

Cheers!
Innovations in Science Teacher Education Editorial Team
Dr. Sarah Boesdorfer, Co-Editor
Dr. Rebekka Darner, Co-Editor
Ms. Amanda Fain, Technical Editor
In Memoriam: Dr. Norman Lederman

Dear ASTE colleagues:

It is with a heavy heart that we write to you with the sad news of the passing of ASTE (AETS at the time) past president Norman G. Lederman. Norm passed away on the morning of February 26, 2021 after a brief and unexpected illness. As always, his wife and partner, Judy Lederman was right by his side, as well as his stepchildren Abigail Bernier and Ben Sweeney. He and Judy had recently relocated from Chicago, Illinois to Rhode Island to be closer to family and continue their work in science education. Norm was 69. He embodied in his career the often-sought goal in our community of bridging the worlds of science teachers, science teacher educators, and science education researchers.

Over the course of 47 years, Norm led a distinguished and impactful career as a science teacher, science teacher educator, and science education researcher and leader. Shortly after earning his B.S. and M.S. degrees in biology from Bradley University (1971) and New York University (1973), respectively, Norm taught biology for a decade to high school and community college students in Illinois and New York, as well as college students at Syracuse University. During those years, he earned an M.S. in secondary education from Bradley (1977) and Ph.D. in science education from Syracuse University (1983), studying under Dr. Marvin Druger. Norm held assistant professor positions in science education and teacher education at Syracuse University, State University of New York–Albany, and Oregon State University (OSU). At OSU, he was promoted to associate and then full professor. In 2001, he chaired OSU’s Department of Mathematics and Science Education, and left that year to found and chair IIT’s new Mathematics and Science Education Department. In 2011, Norm was named an IIT Distinguished Professor. By the time of his retirement in 2020, his IIT department had become a local, national, and international force in discipline-based mathematics and science education. Along the way, Norm was a Visiting Research Professor at National Changhua University of Education, Taiwan; Fulbright Scholar at the University of Pretoria, South Africa; Honorary Professor at the Hong Kong Institute of Education; Guest Professor at Beijing Normal University, China; and Distinguished Foreign Expert at the State Administration of Foreign Affairs, China. At the time of his passing, Norm was a “virtual” visiting professor at the University of Science and Technology of China.

Norm taught and mentored hundreds upon hundreds of science students, preservice and in-service science teachers, and graduate students in science education in the United States and across the globe. He was major professor to 51 doctoral students, mentoring them into successful careers of their own. Norm was an amazing mentor and treated his doctoral students as family, and was considered as family to all his students. For his work, Norm received the Illinois Outstanding Biology Teacher Award from the National Association of Biology Teachers (1979), as well as the Presidential Citation for Distinguished Service (1986) and Outstanding Mentor Award (1998) from the Association for the Education of Teachers in Science (AETS). Additionally, Norm provided significant service and leadership to major national and international organizations across science teaching, science teacher education, and science education research. He was elected president of AETS (1994), member of the board of directors (1994–1998) and director of teacher education (1996–1998) of the National Science Teachers Association (NSTA), and NARST executive board of directors (1997–2000) and then NARST president (2002). He also served as the North American representative to the International Council of Associations for Science Education (2004–2010). For this extensive service and leadership, NSTA recognized Norm in 2017 with the Distinguished Service to Science Education Award.

Norm and his wife, Judy
Norm was an intellectual force and prolific researcher. He studied preservice and in-service science teachers' knowledge structures of subject matter and pedagogy, pedagogical content knowledge, and teachers’ concerns and beliefs. Norm is best known for his research on teaching and learning about nature of science (NOS), a robust domain of research in science education that is inextricably linked with his name. Norm's 1992 review of the research literature on NOS published in the Journal of Research in Science Teaching (JRST) continues to be one of the top five most cited papers in our field. This paper has shaped research on NOS in science education for the past 30 years. Over his distinguished career, Norm published more than 200 articles in professional refereed journals and 46 book chapters. He authored or edited 11 books, including an elementary science teaching methods textbook. Norm co-edited with Sandra Abell the Handbook of Research on Science Education: Volume I (2007) and Volume II (2014), and was editing Volume III of the handbook, with Dana Zeidler and Judy Lederman, at the time of his passing. Norm has given more than 1000 presentations, invited talks, and keynote addresses at regional, national and international professional conferences and meetings, as well as universities around the globe. His work has been heavily cited with 38,000+ citations on Google Scholar (h-index = 70; i10-index = 153) and 6,400+ citations on the Web of Science® (h-index = 33; i-10 index = 45).

Norm's research leadership extended to shaping the field through extensive engagement in the editorship of professional journals. He served as co-editor of the School Science and Mathematics Journal, and Journal of Science Teacher Education (JSTE), as well as associate editor for JRST, JSTE, and International Journal of Science Education, among many other journals. Norm served on the editorial boards of some 15 science education journals across the globe.

For his scholarship, Norm was elected Fellow of the American Association for the Advancement of Science (2009) and American Education Research Association (2010). He was recognized with an honorary doctorate from the University of Stockholm, Sweden (2008). In 2011 NARST honored him with the Distinguished Contributions to Science Education through Research Award for his outstanding and continuing contributions, notable leadership, and substantial impact in the area of science education.

The science education community worldwide lost a colleague, relentless advocate, and visionary leader with exceptional passion and dedication to the causes of science education. For those of us who knew Norm as an outstanding teacher, dedicated advisor, supportive mentor, and lifelong friend, our loss is even graver. We will miss him sorely.

Judy Lederman can be reached at ledermanj@iit.edu or by mail at 239 Spartina Cove Way, Wakefield, RI 02879, USA.

Contributed by Renee Schwartz

Suggested Honorarium: Amity Gann

Dear Friends,

I am writing to announce the creation of the Amity Gann Student-Teacher Resource Fund at the Temple College of Education and Human Development. Amity was dedicated to the mission of providing high quality science education for all, and one of her final wishes was the creation of a lending library for science teaching supplies for Temple student teachers. It was her wish that these classroom supplies be made available to help Temple student teachers improve the quality of science teaching in Philadelphia schools. The teaching supply lending library has been seeded with materials from Amity's personal collection, and we have now created an endowed fund to support this effort in perpetuity.

If you would like to contribute to the Amity Gann Student-Teacher Resource Fund, please visit the Temple College of Education and Human Development Giving Page. Please select “Other” designation and note that your donation should go to the “Amity Gann Student-Teacher Resource Fund.” You may also refer to the fund by number which is 727722-19010-06. Funds will be used to stock, maintain and administer science teaching supplies for Temple student teachers. There is no deadline for contributions.

Submitted by Jenn Oramous for Rebecca Hubbard, Amity's wife
Hello all! I bring you the latest installment of the newsletter and hope you find it informational and entertaining! President Hanuscin and I have been talking and we would like to make the newsletter a peer-reviewed publication. This means that you will be able to put your articles published here on your CV and tenure packages! This also means we will be asking for new, different and more short pieces to publish. View the invitation to submit here. To start moving in this direction, we ask that you submit all contributions to the ASTE Newsletter online for all future submissions. This link will also go out with the next call of articles in July.

Please feel free to contact me at any time if you have items that you feel are good for the newsletter or if you have any suggestions on how we may improve it. I love being able to serve you all, the members and organization of ASTE, through the newsletter.

Issue items due by:

- Autumn Oct. 10
- Winter Feb. 10
- Spring May 10
- Summer Aug. 10

All members are invited to submit items.

Editor: Jennifer Oramous
Email: newsletter@theaste.org

Newsletter Sleuth Challenge: Use the clue below to locate the ‘easter egg’ to become a Newsletter Sleuth! Remember to click on it.

Clue: Granted, it’s a fun game!

Community Engagement Challenge:
Post your thoughts on one of this issue's articles on FaceBook or Twitter, and tag the author and #ASTENewsletter.

2022 International Conference
Join us in Greenville, SC on January 6-8, 2022

Celebrations
Congratulations to Dr. Sumreen Asim on winning a Trustees Teaching Award!
Congratulations to Jerrid Kruse on promotion to Full Professor!
Congratulations to Dr. Jenn Oramous on successfully completing her PhD!

To submit your celebrations go to the ASTE Newsletter online form! We want to celebrate our wonderful members accomplishments!