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2023

VAST's Vision:

**Excellence in Science Education
Through Innovation**

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Check the web for news, conference updates, registration, and forms.

The Science Educator

Late Spring 2023

A Publication of VAST, The Virginia Association of Science Teachers

Vol. 71, No. 5

VAST PDI: "Science Teachers Leading from the Classroom"

November 16, 17, 18 - Hotel Roanoke and Conference Center

Nov. 16 - Joshua Whitlinger

General Session Speakers

Nov. 18 - Laura Akerson

Imbedding Social and Emotional Learning into Everyday Lessons

Post pandemic teaching is a new world of opportunity to reimagine education, but what if we aren't asking the right questions? Albert Einstein was asked if he had an hour to solve a problem how would he do it? He responded, "I would spend 55 minutes thinking of the right question to ask and 5 minutes solving it." If you've asked yourself, "What won't I do to help children to learn", but don't know where to start, this professional development is for you. Walk away empowered to use the teaching tools many of us already have.

Hear about new ways to use the best hands-on, digital learning, student advocacy, and social emotional learning. Joshua Whitlinger is a National Geographic Certified Educator, at Old Donation School. Joshua teaches Earth Science and Physical Science to the gifted and talented. Hear stories students who take charge of their learning by setting their own goals in class while simultaneously designing and reflecting about their lessons. Students ask what the answers to the questions are and what can they can do to get answers.

Joshua Whitlinger, was the 2023 Teacher of the Year in Virginia Beach Public Schools, and a National Geographic Certified Educator. He teaches Earth Science and Physical Science to the gifted and talented.

**Nov. 17 - Dr. Bethany Brookshire**

Don't Dumb it Down: Science Communication and Journalism

When students leave school, they do not leave science behind. Of course, we hope they'll all become scientists. But even if they don't, students will be confronting information about science every day of their lives, from medical information to the latest news on scientific findings. Who conveys that information? Well, I do. Let's talk about what science communication is, what science journalism is, and how breaking them down and understanding what they are can help students read more critically and better navigate the science that makes the world run.

Dr. Bethany Brookshire is an award-winning freelance science journalist and author of the critically acclaimed 2022 book *Pests: How Humans Create Animal Villains*. Her work has appeared in *Science News*, *Science News for Students*, *The Washington Post*, *The New York Times*, *Slate*, *The Guardian*, *The Atlantic* and other outlets.



Teachers are the Spark

Teachers defy Science. Think about it. Biology, Chemistry, Physics, Earth and Space Science - prefer stable states, and systems seek these states at lowest energies possible. When was the last time you thought of teaching and a classroom as naturally stable and low energy? Never. You are the pushers, the pullers, the cheerleaders, the creatives, the spark that ignites curiosity, motivation, wonder, and learning. This spark, and how we defy science and generate it, is the key to who we are and how we can light it up for our students...AND lead the way for our colleagues and communities. It was never my goal to organize professional development for my entire school, to found and lead an educational nonprofit, or to be interested in let alone write federal programs. But it's where my spark, used to ignite my students, has taken me. Where will your spark take you?

Laura Akerson of Richmond, Virginia has taught Physics, Math, and Biomedical Engineering/Design for the past 22 years.

**Click to
REGISTER FOR THE PDI**

From the Executive Director

2023 RESET-In-Person

As we enter this reset era, we need to look for flexibility. VAST is working hard to provide ways to connect and share your palette of innovativeness, lending support and building relationships and partnerships. Meeting each other where we are to move to where we want to be.



Susan Booth

We look to leave the Post-Covid Stress returning to the experiences to assist our mind and body to retake control realizing sometimes in preparing there is no way to plan and control everything. Teachers do not typically do this. Realistically, we are not made for continued stress as we know we get tired, lose sleep, and become physically ill. Why not attend the PDI, network, and get through all of this together?

As we get back on our feet from just a little while ago working from home to create interest for the return to face-to-face meetings we are aiming for a full recovery. Hopefully, our attendance from last year at 500 for the PDI now going to the Hotel Roanoke we see a slight move away from per diem charges thus raising the costs slightly.

So, take the time to plan ahead:

- Make your hotel reservation.
- Submit your presentation proposal.
- Ask for financial support.
- Ask for leave.

Let the world know you need to be at the VAST PDI in November for:

- The latest developments in your field.
- Meet the people who invented the new designs.
- Gain great transference of information.

We all need to talk face-to-face instead of in a chat box. As well as being a part of a group that gets the job done better at a top performance level because they attended. See you soon!

Susan Booth

Susan Booth, Ed.S., VAST, Executive Director
Fellow, Virginia Academy of Science

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President's Page



Stephanie Harry,
VAST President 2023

My theme for the 2023 VAST PDI is “Science Teachers Leading from the Classroom”. I want to first thank Rachel Stover, a student from Tabb High School, for designing my PDI logo. I presented her with a rough idea for my logo and I am truly amazed at what she produced. This was Rachel’s first logo design, but I am sure this will not be her last. I look forward to hearing how she continues to develop as a leader.

Working with Rachel in creating this logo is a great example of my theme. I am a classroom science teacher who is currently serving as the VAST President. Developing the VAST PDI theme and designing the PDI logo are some of my responsibilities this year. My role in VAST opened the door for Rachel, a student in Virginia schools, to develop her own leadership role. By designing this logo Rachel was given the opportunity to combine her love for art and her science knowledge to create a product. Participating in this experience has provided Rachel with a unique learning experience. She will be able to share this experience and continue to grow as a student and leader.

I thought this article would be a good time to explain my logo design. I chose to use a hexagon as my logo border because this shape is most common in science and nature. Columns of basalts from an old volcanic eruption. A snowflake. Beehives. Corals, crystals, and a lot of other structures, both biological and non-biological, feature hexagons (Andrei, 2021). The theme of this year’s PDI is on the outside of the hexagon. It begins at the top of the hexagon with the word “Science”. Inside the hexagon, in upper right corner, this picture represents the teacher in the classroom. At the bottom of the hexagon, you will see the teacher leading a group of educators and/or students. In the upper left portion, there is an image of the state of Virginia. Inside the state are various symbols which represent the different branches of science taught in our great state. The three green arrows show the continuous cycle of educating, leading, and impacting educators and students of Virginia.

Science teachers of Virginia take the knowledge they have learned and share it with their students and colleagues. As this knowledge is shared these teachers are growing as leaders and science education becomes stronger in our state. As teachers we never start learning. The more we learn the more we can share and help others. As we help each other we are indirectly also helping other students and educators.

That is why I want to encourage you to submit a proposal to present at the 2023 VAST PDI. The knowledge you share can have a positive impact on students and teachers across the state. I am sure you have a favorite unit, lesson, laboratory experiment which can be shared with other educators. Presenting at the PDI is one way you can continue to grow as a science educational leader. You can also help others grow as they take the knowledge learned at the PDI, to share with educators in their district and school. If you are not ready to present by yourself then find a colleague (or two) and present as a group.

[PDI presentation proposals are being accepted until June 15.](#)

Stephanie Harry, VAST President 2023

Adjunct Professor, Virginia Peninsula Community College,
Program Coordinator, ACS Hach Mentoring Program
Chemistry Teacher, Tabb, Yorktown, VA

Reference

Andrei, M. (2021, September 18). The hexagon shape and why it shows up so much in nature. ZME Science. <https://www.zmescience.com/feature-post/hexagon-shape-nature-physics-13092021/>

Virginia Association of Science Teachers 2023 Professional Development Institute Schedule At a Glance



(draft as of 05-11-2023)

Wednesday November 15, 2023

7:00 PM – 8:30 PM VAST Board of Directors Meeting

Thursday November 16, 2023

Ticketed Donna Sterling Institute (separate registration from the PDI)

Title: “*Create the Future: Using Engineering Problem-based Learning to Solve Transportation Challenges*”

7:30 AM Continental Breakfast and Check in (Room TBD)

8:00 AM – 3:00 PM Sterling Institute Presentations and Lunch

2:30 PM – 6:00 PM **VAST PDI Registration Desk Open**

3:15 PM – 5:00 PM **Pre-Conference Ticketed Workshops**

#1: **Connecting Classrooms and Communities**

Sponsored by the Science Museum of Western Virginia

#2: **Engaging Students Through Phenomena-based Instruction**

Sponsored by hand2mind

#3: **Introduction to Small Uncrewed Aircraft Systems (sUAS, or Drones)**

Sponsored by the Virginia Space Grant Consortium

2:30 PM – 5:00 PM **Pre-Conference Ticketed Field Experiences**

#1: **Mill Mountain Theatre – Science in Live Theatre**

#2: **Roanoke Pinball Museum – Physics and Engineering in the Pinball Machines**

6:00 PM – 7:15 PM **Welcome to the PDI, General Session I** (Roanoke Ballroom AB)

Speaker: Joshua Whitlinger, Sponsored by Five Ponds Press

Title: “*Imbedding Social and Emotional Learning into Everyday Lessons*”

(Door prize giveaway)

7:30 PM – 9:00 PM **Night with the Exhibitors** (Roanoke Ballroom C-H)

Sponsored by WorldStrides

Friday November 17, 2023

7:15 AM – 5:00 PM Registration Desk Open

7:30 AM - 8:30 AM Continental Breakfast in the Exhibit Hall

7:30 AM – 10:30 AM **Exhibit Hall Open** (Roanoke Ballroom C-H)

8:30 AM – 9:20 AM Concurrent Session 1 Breakout Presentations

9:35 AM – 10:25 AM Concurrent Session 2 Breakout Presentations

10:40 AM - Noon **General Session II and Business Meeting** (Roanoke Ballroom AB)

Speaker: Dr. Bethany Brookshire

Title: “*Don’t Dumb it Down: Science Communication and Journalism*”

(Door prize giveaway; must be present to win.)

Noon – 1:00 PM Ticketed Lunch (Room TBD)

2:00 PM – 5:45 PM Exhibit Hall Open

Schedule At a Glance continued

1:10 PM – 2:00 PM
2:15 PM – 3:05 PM
3:20 PM – 4:10 PM
4:25 PM – 5:15 PM

Concurrent Session 3 Breakout Presentations
Concurrent Session 4 Breakout Presentations
Concurrent Session 5 Breakout Presentations
Concurrent Session 6 Breakout Presentations

5:30 PM - 6:45 PM
7:00 PM - 9:00 PM

Celebration Ticketed Dinner (Awardees will be recognized.) (Room TBD)
Science Museum of Western Virginia Viewing Party, Social, D.J., College and
University Expo. (1 Market Square, SE)

Saturday November 18, 2023

7:30 AM – 10:30 AM
7:30 AM - 8:30 AM
7:30 AM - 9:30 AM
9:45 AM – 10:35 AM
10:50 AM – 11:40 AM
11:55 AM - 12:45 PM
12:45 PM – 1:00 PM
1:00 PM – 2:15 PM

Registration Desk Open
Continental Breakfast in the Exhibit Hall
Exhibit Hall Open
Concurrent Session 7 Breakout Presentations
Concurrent Session 8 Breakout Presentations
Concurrent Session 9 Breakout Presentations
Pickup Ticketed Box Lunch to eat during General Session III
General Session III, Meet Your VAST Officers (Roanoke Ballroom AB)
Speaker: Laura Akerson, Sponsored by Virginia Space Grant Consortium
(VSGC)
Title: “Teachers are the Spark”
(Extra-Special Door Prizes Giveaway; must be present to win)

2023 PDI Registration

Registration Opens March 1

Presenter - \$155

Attendees:

\$195 Earlybird

\$240 Regular Registration

\$115 Full Time Student Earlybird

\$145 Full Time Student

\$185 Lifetime VAST Members



**VAST PDI
INFORMATION:
Forms and
Registration**



Virginia Association of Science Teachers 2023 Professional Development Institute



Thursday Afternoon Ticketed Workshops

3:15 PM – 5:00 PM

The cost for each workshop is \$10.00.

Register online (<https://vast.wildapricot.org/2023pdi>) for one of the workshops by October 31.

Workshop #1: Connecting Classrooms and Communities

Presenters: Danielle Murray, Katherine Brooks and Ivy Phillips of Science Museum of West Virginia

Sponsored by the Science Museum of Western Virginia

Grade Level: K-12

Description: This workshop will show how educators working with K-12 students can utilize resources in their communities to supplement their classroom experiences from 3:15-4:15. Followed by a teacher field trip to the museum where we showcase the outreaches and field trip offerings to the attendees from 4:15 to 5:00-closing.

Workshop #2: Engaging Students Through Phenomena-based Instruction

Presenters: Pam Caffery, National Solutions Sales Consultant, hand2mind

Sponsored by hand2mind

Grade Level: Elementary

Description: Come explore how everyday phenomena can be leveraged to engage students in meaningful scientific investigations, collect authentic data, and develop appropriate scientific models and explanations. Participants will investigate a wide range of everyday phenomena while gleaned turnkey strategies for a successful 5E learning experience.

Workshop #3: Introduction to Small Uncrewed Aircraft Systems (sUAS, or Drones)

Presenters: Kristen Duprey, STEM Education Specialist, Virginia Space Grant Consortium, Kari Espada, STEM Education Specialist, Virginia Space Grant Consortium

Sponsored by the Virginia Space Grant Consortium

Grade Level: High School

Description: Virginia Space Grant Consortium (VSGC) coordinates and leads a variety of precollege and higher education programs that pipeline students into STEM majors and careers. This workshop will give teachers an introduction to small uncrewed aircraft systems (UAS, or Drones). Hands-on training and resources for integrating UAS into the classroom will be provided. Instructors will also provide information about careers in UAS and how they are used in the workplace. The primary target audience is high school teachers with little knowledge of UAS.

An overview of various UAS applications, an introduction to UAS and physics of flight, flight planning and operations, coding with drones, and hands-on flying of drones will be provided. Teachers will leave this workshop with a better understanding of UAS applications, vehicle and sensor selection, safe flying practices, how to obtain controlled airspace flight authorizations, coding with drones, and classroom-ready instructional resources to be used in the science classroom. Teachers will also hear about the availability of additional training, courses, certification programs, and dual-enrollment and distance learning opportunities available through Virginia's community colleges.



Virginia Association of Science Teachers 2023 Professional Development Institute



Thursday afternoon Ticketed Field Experiences 2:30 PM – 5:00 PM

Meet at the VAST Registration Desk in the Hotel Roanoke at 2:30 PM for the short walk to the Museum and Theatre.

Cost for each field trip is \$15.00.

Register online (<https://vast.wildapricot.org/2023pdi>) for one of the field trips by October 31.

Field Trip #1: Mill Mountain Theatre

Come and explore the role of science in live theatre. We will be visiting the Mill Mountain Theatre, a professional theatre company. Learn how they build sets and prepare for their upcoming holiday show. From the simple machines used to move the sets to the intricacies of sound, lighting and costuming, learn the role of science in the magic of theatre.

Field Trip #2: Roanoke Pinball Museum

Come and learn about the physics and engineering of pinball machines- from the classics to modern day. After the guided learning experience enjoy free play on over 50 pinball machines! Check it out at www.roanokepinball.org.

From the President-elect

Each year, our Professional Development Institute relies on all our board members and several VAST members to help the conference run smoothly. Volunteer positions include helping at the registration desk, taking tickets, walking the exhibit hall, and more! Please be on the look-out for the link, select your day and time, and help VAST have an awesome conference!

Thank you!

Lori Pawlik

Please plan to present at PDI 2023. Fill out a presentation proposal form. **The Deadline is June 15.**
[Click to go to the online proposal form.](#)



WorldStrides is a proud sponsor of the **Night with the Exhibitors** during the 2023 Professional Development Institute. We can't wait to see you in November for a **Taste around the World** while we share with you how easy it is to organize a hands-on, science-filled, educational travel program for your students.

Thursday, November 16
7:30 PM – 9:00 PM (Roanoke Ballroom C-H)



Friday, November 17 (7 - 9pm)
Science Museum of Western Virginia
Viewing Party

Come join us and celebrate our showcasing of the EYE (the upgraded planetarium). While you enjoy DJ Rodney and meet our Regional Directors with Colleges and Universities for Banner Days.

Exhibit Hall - VAST Swap Table

Join the fun and bring stuff you want to share and give away. Place it on the table and swap out for something you would like. Nothing to swap? Are you sure? Everyone needs something? Biodegradable packing peanuts, paper towel rolls or what I got last year a core sample. Have fun! Be creative!!



VAST Recognition In Science Education (RISE) Awards

VAST RISE Awards are presented to spotlight the excellent work done by science educators across the Commonwealth. They recognize service to science education in the individual's school, school system, and the VAST district in which they work. The awards are grouped in twelve distinct categories:

Remote Teaching (Ele., MS & HS)	Environmental Science
Elementary (pre K-5)	At-Risk Students (K-12)
Middle school (6-8)	Resource Teacher (i.e.: Tech., Sci. Resource, etc.) Science
Biology	Educator (non K-12, i.e.: Science Supervisor, Information
Chemistry	Education, Principal, etc.)
Earth Science	University/College Faculty
Physics	Community Partnership (i.e.: Business, Politician, etc.)

VAST would like to thank Graduate Teacher Education at Eastern Mennonite University ("EMU"); a private university with campuses in Harrisonburg (Virginia), Lancaster (Pennsylvania) and wherever you are (online). EMU Graduate Teacher Education seeks to increase professional knowledge and competence among current practitioners by developing leadership, becoming agents of change who advocate for children and youth, promoting caring learning environments, and teaching boldly in a changing world through an ethic of care and critical reflection. To further this aim, EMU Graduate Teacher Education is sponsoring the RISE Awards for:

Remote Teaching (Ele, MS, HS), At-Risk Students (K-12), and Community Partnerships (Businesses, Politicians, etc.).

The RISE Awardees are invited to attend the VAST PDI and will be recognized during the PDI. Awards Nomination deadline is September 30, 2023.

To apply or nominate [click here](#) to complete online.



VAST Coffee Talk with the Content Chairs

VAST wants you to remember you are not in this alone.

Next Coffee Talk Date:

September 23, 2023, 10:00 AM Theme: "Back-To School"

Registration will open later this summer.

Questions? Contact meeting host Dave Matchen, matchendl1966@gmail.com

Coffee Talks are held on Saturdays and there is no cost to register.

Watch for future dates and times.



2023 VAST PDI

The Hotel Roanoke & Conference Center
110 Shenandoah Avenue, Roanoke, VA 24016
November 16 - 18 2023

The VAST reservation website: <https://book.passkey.com/event/50478556/owner/9515698/home>
 The guest room rate is \$139.00 plus 13.3% tax per night. With taxes, the rate is \$157.49 per night.
 If you are an overnight guest, wireless internet is complimentary throughout the hotel and conference center. The username and password is the guests last name and room number.

For guests who are not overnight guests who are just coming in for the day, there is a \$9.95 per day charge; these guests can pay for the internet through our splash page when they try to access the internet.

We do have options for free internet for the day guests. In the main lobby, we do have free wireless internet access. We also have two business center locations that have computers for people to use.

Valet Parking - \$21.00 Self-Parking - \$15.00

Sponsor Opportunities at the VAST Professional Development Institute

\$1000 Level Sponsor

- rotating banner ad on the PDI app
- digital program listing (name, logo, link)
- 1/4 page ad in newsletter, blurb-280 characters
- 10% discount on VAST 2022 PDI Exhibitor booths

\$2500 Level Sponsor

- rotating banner ad on the PDI app
- digital program listing (name, logo, link)
- 1/2 page ad, blurb-300 characters
- eblast ad distributed to all VAST members
- 15% discount on VAST 2022 PDI Exhibitor booths

\$5000 Level Sponsor

- rotating banner ad on the PDI app
- digital program listing (name, logo, link)
- FULL page ad in newsletter
- eblast ad distributed to all VAST members
- 25% discount on VAST 2022 PDI Exhibitor booths

Many thanks to our sponsors! We look forward to seeing you in November.



Leadership in VAST, Begins with YOU

Becky Schnekser

This year is all about leading from the science classroom. We know you are a dedicated leader, you are already a member of VAST. It's time to step further into your leadership role with VAST by joining our Board of Directors.

Nominate someone, or yourself, for one of our open positions.

President-elect: The President-elect shall serve as the co-Chairperson of the standing Professional Development Institute (PDI) of the year in which they will serve as President.

Treasurer: The Treasurer shall be responsible for the collection and recording of membership dues, receive all monies due to VAST, pay all bills legally incurred by VAST (including approved PDI expenses), and arrange for the yearly audit of the financial records (when authorized by the Board of Directors). With input from the President, Board, and PDI Committee, the Treasurer shall prepare a budget for the current year for approval at the first Board of Directors meeting of the year. The Treasurer shall prepare a report for all meetings of the Board of Directors and for the annual meeting. In addition, the Treasurer will be responsible for the timely preparation of IRS reports, including the filing of taxes and the renewal of tax-exempt status. The Treasurer shall be elected to a term of three years.

Regional Director (Regions 1, 3, 5, and 7 are up for 2024!) Regional Directors shall be elected from each of the eight (8) Department of Education regions. Directors shall be elected by the membership to serve a two-year term and may serve more than one term. Directors from even-numbered regions will be elected on even years, and those from odd-numbered regions will be elected on odd years. Directors will, within their region, promote VAST membership, regional professional development activities, and the VAST Professional Development Institute (PDI). Directors will serve as the coordinator of science leaders within their region and encourage an active and viable network within their region. Directors are expected to attend VAST Board meetings and provide a report on activities within their region. Directors shall actively participate as VAST leaders including contributing to publications, awards nominations, and the solicitation of presenters for the VAST conference.

Nominees may fill out this electronic form, or complete the file attached to the newsletter and email to Becky Schnekser expeditionsschnekser@gmail.com

MySciLife®

Use the power of social media to bring science to life!



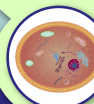
ASSIGNMENT: CELL PROCESSES



Sparkling Lysosome:
I clean up the place, getting rid of waste 🗑️ and other unwanted substances that may get into the cell.



Sparkling Lysosome:
You're awesome, 😊 but I'm always there to clean up any bad things that enter the cell.



How does the function of your cell part affect tissue growth in muscle?



Tenacious Cell Membrane:
Thanks, Sparkling Lysosome. We make a good team! 🤝



Tenacious Cell Membrane:
I may be thin, but I'm tough! 😊 I surround the cell and only let good things enter.



Replenishing Ribosome:
I'm a cell organelle 😊 that provides the protein powder to help muscle tissue grow.



Learn more & create your account on MySciLife.org!

MySciLife is a free, educational social media platform designed to enrich middle-level science instruction—for a lesson, a unit, or all year long.

In MySciLife, students create identities based on science concepts, conduct research to build their profiles, and learn from each other as they post, comment, and respond to content in your private classroom community.

MySciLife is...

- **Browser-based and accessible** from any device with an internet connection.
- **Resource-rich**, with a library of customizable NGSS-aligned modules.
- **Safe**—COPPA-compliant and password-protected.
- **Free**, with no limits on class size.

MySciLife.org

Contact Us: MySciLife@sflinc.org



The Source for Learning, Inc. is a nonprofit educational services organization.

In Partnership with
Virginia's Transportation Construction Alliance
and
Friends of Mineralogy Virginia Chapter

VAST Announces Summer 2023 Rockin' PD

The Virginia Association of Science Teachers in partnership with the Virginia Transportation Construction Alliance (VTCA) and Friends of Mineralogy Virginia (FMVA) is excited to bring members four new aggregate industry field experiences across Virginia's diverse geologic provinces. These professional developments are free of charge to VAST members and open to educators of all grade levels. Earn professional development hours, if approved by your school evaluators! Attend one or all four drive-in field trips at four unique Virginia locations.



June 23rd Swords Creek Quarry by E. Dillon & Company

Nestled in the Appalachian Plateau, the Swords Creek quarry will provide teachers with a unique look at the diverse applications of aggregate materials. While we typically think of aggregate for construction materials and local roadways, E. Dillon & Company has produced a variety of unique safety products using dolostone and limestone at the quarry that continue to support Virginia's coal industry. The nearby countryside is beautiful for day hikes and local tourism once the trip is over!



June 30th Bargers Quarry by Charles W. Barger & Son

Charles W. Barger & Son, a family owned operation, is a significant supplier of aggregate materials in the Lexington area. The quarry has beautiful dark-blue limestone with calcite veining (known as "zebra rock" by the owner and quarry workers) and some rare pyrite crystal mineralization which has captivated the world over the years. You can check out the logo of Friends of Mineralogy Virginia to see what the unique form of pyrite looks like!



July 21st Dale Quarry by Vulcan Materials

Dale Quarry, owned by Vulcan Materials, is a crushed stone operation but is also known for very unique igneous dike formations and pegmatites which run through the country rock. The material at the site provides teachers with classic mineral specimens we are all familiar with from our mineral quizzes, such as feldspar, quartz, mica, garnets, and beryl. Collectors have visited the site over the years and in 2019 a beryl crystal reaching 11 inches was discovered. The geology of the quarry is one of a kind and will provide teachers with a hands-on look at hard rock geology and pegmatite mineralogy. One rock from this quarry is bound to have at least a few minerals, which is perfect for kids and your geology labs!



July 28th Bull Run Quarry by Luck Stone

Started in the 1950's, the Bull Run Plant was purchased by Luck Stone in 2002 and is the largest operation for the company today. The plant is located near the historic Bull Run Battlefield and serves the growing Northern Virginia market. This quarry mines a type of rock known as traprock by miners or diabase by geologists. Diabase is a dense igneous rock dark colored, greenish black to bluish black. It formed as hot magma surfaced from within the earth through fractures in other rocks already present near the surface.

Registration is required.

REGISTER



Exhibit at the VAST PDI 2023 REMINDERS



VAST PDI 2023 will be held on Nov. 16-18 in Roanoke at the Hotel Roanoke. VAST celebrates our 71st Anniversary 2023. The theme this year is “Science Teachers Leading from the Classroom”.

- Register to exhibit and present at the VAST Professional Development Institute. Register early to exhibit since space is limited.
 - 2023 Online Registration & Fees for the In-Person PDI attendees, presenters, and exhibitors opens March 1.
- Submit your presentation proposal(s).
 - The online presenter proposal form will be open from March 1 to June 15. All presentations must be submitted by June 15. [Link](#)
 - Commercial presenters are required to exhibit.
 - Commercial exhibitors who complete the online exhibitor registration and submit an online presenter proposal form by **May 31** will receive one free presentation slot.
 - Additional presentation slots can be purchased for \$150.00 per presentation.

All registration materials and the presenter proposal form can be found on the Annual PDI page at VAST.org. [Link](#)

Exhibitor Registration

[Link](#)

Commercial Exhibitor Booth (by October 5)

\$660 per booth

Not-for-Profit Exhibitor Booth (by October 5)

\$370 per booth

Exhibitors are asked to provide two door prizes...one for a giveaway on Saturday at your booth and then one to donate to VAST for the Final General Session. Please label prizes Elem, MS, HS or all of the above.

Advertise in the VAST Newsletter, “The Science Educator”

In case you would like to advertise with us the form for advertising is [linked](#) here. You will be able to target science educators from teachers to administrators, pre-K to college and university professors and preservice teachers. Go to Link to see past issues of our newsletter, The Science Educator and for other advertising opportunities.

The next digital newsletter submission to the editor is May 1.

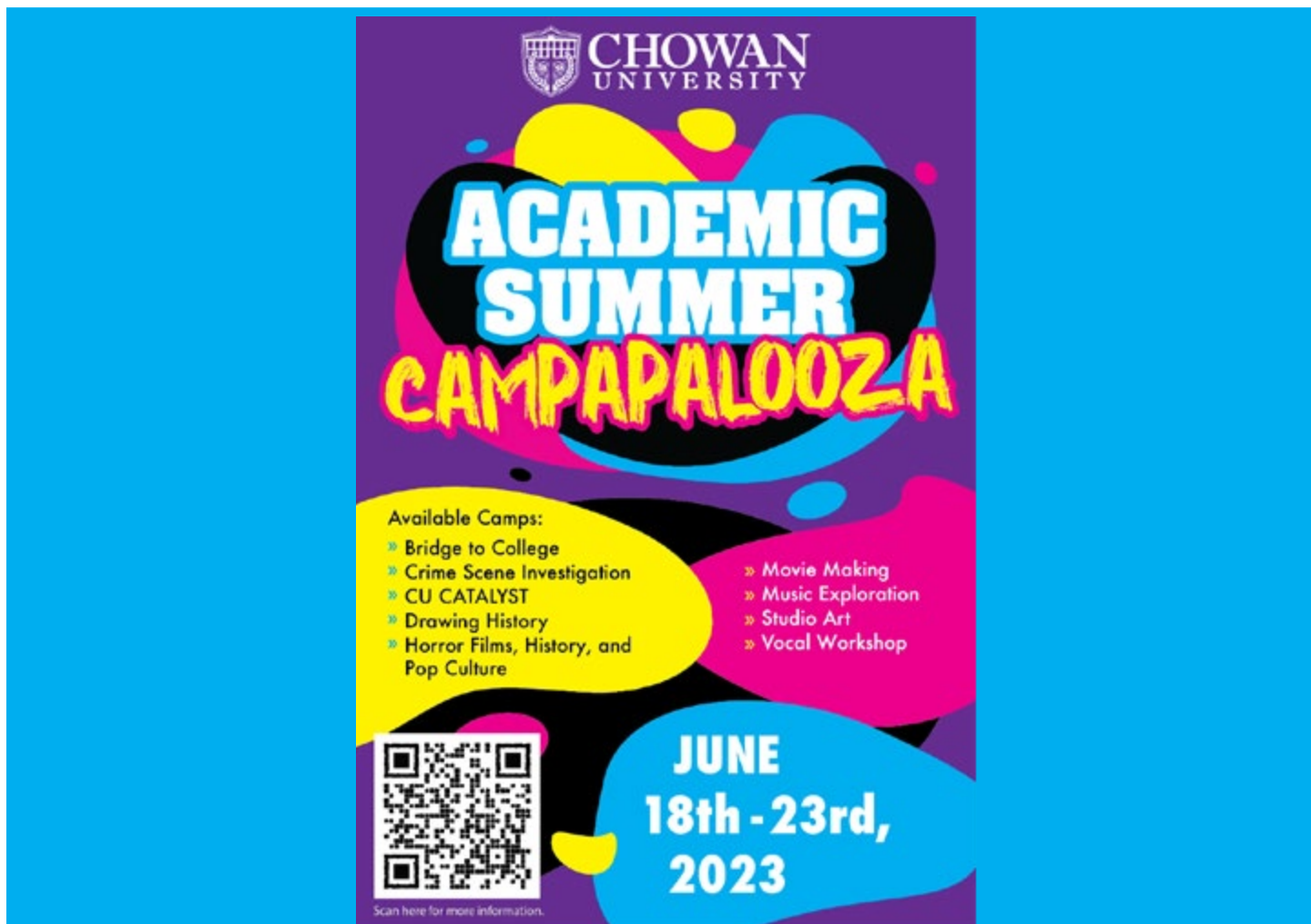
Book your hotel room

Be sure to reserve your hotel room at VAST’s per diem rate to help defray costs at the hotel, Hotel Roanoke in Roanoke. [Link](#)

For more details go to the VAST website. [Link](#)

We look forward to seeing you in November.

Susan Booth, VAST Executive Director [email: executive.director@vast.org](mailto:executive.director@vast.org)



CHOWAN UNIVERSITY

ACADEMIC SUMMER CAMPAPALOOZA

Available Camps:

- » Bridge to College
- » Crime Scene Investigation
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- » Drawing History
- » Horror Films, History, and Pop Culture
- » Movie Making
- » Music Exploration
- » Studio Art
- » Vocal Workshop

JUNE 18th - 23rd, 2023

Scan here for more information.



Materials Camp for Teachers

We are very pleased to announce the **ASM Materials Camp for Teachers** in the State of Virginia will be at the **Advanced Technology Center (ATC)** in Virginia Beach, VA this **July 10-14, 2023**.

FREE STEM PROFESSIONAL DEVELOPMENT FOR TEACHERS

OUR PROGRAM

ASM Materials Camp®-Teachers is a free, week-long, idea-generating workshop introducing teachers to methods that make math and core science principles more enticing and relevant to their middle and high school students. Materials topics are great motivators in any engineering, technology or science course as students learn concepts that are reflected in their everyday lives.

WHAT MAKES US DIFFERENT

Teachers leave our camps able to engage students using simple, low-cost experiments that integrate into existing lesson plans. Participants are eligible to receive four (4) Continuing Education Units (CEUs) and can opt for two (2) graduate level credits.

REGISTER TODAY

Questions? Contact: Jeane Deatherage, 440.671.3831 | jeane.deatherage@asminternational.org

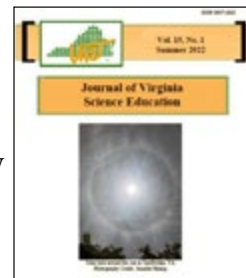
JVSE Update - May 2023

SCAN ME



Dr. Angela Webb and Dr. Joi Merritt, JVSE Co-Editors

We are excited to be working on this year's first issue on the theme Rising to a new vision for science education: Implementing the 2018 SOLs. Be on the lookout for this issue to come out this summer. Thank you to all who make possible issues of the Journal of Virginia Science Education (JVSE)—namely manuscript authors and reviewers!



We encourage VAST members to consider submitting an article for our winter issue. The theme is Science education for our current times: Connecting science to issues in the public sphere and students' curiosities and questions (submissions due July 31; published December 15). Manuscripts that address this theme may include innovative lessons/activities that address community science concerns and/or students' pressing questions about science phenomenon; research on connections between school science and the public's perceptions of science and/or understandings of nature of science; ways to address challenges that may arise when addressing pressing, relevant science ideas (e.g., COVID/pandemic, climate science, environmental justice, etc.) in our science classrooms (PreK through post-secondary); etc.

We also invite all VAST members to volunteer to review submitted manuscripts. This opportunity is a service you can include on your resume and is a great way to get ideas for your own publications. If you're interested in serving as a JVSE reviewer, please scan the QR code and respond to a brief set of questions to (a) indicate your interest in reviewing 1-2 manuscripts this year, (b) update your contact information, and (c) share your areas of expertise and your professional interests.

Please visit the journal webpage to read current and past issues of JVSE, learn more about the issue themes for 2023, and review guidelines for manuscript authors and reviewers.

Trees to Products Program for Teachers

VA SOL Related Field Program for Teachers K – 12

July 10 – 13, 2023

Lodging & Meals Provided in Wise, Virginia

This program offers 30 hours of professional development credit, including Project Learning Tree certification, upon completion.

For information contact Bill Worrell at 276-889-8056 or bworrell@vt.edu

To register go to <https://tinyurl.com/yckwtp8k>



Donna Sterling Institute



Create the Future: Using Engineering Problem-based Learning to Solve Transportation Challenges

November 16, 2023; 8am - 3pm

In Person: Hotel Roanoke, Roanoke

We are pleased to announce the 2023 Donna Sterling Institute.

Participants will:

1. Learn how to implement engineering PBLs in your classroom.
2. Engage in activities to support understanding of engineering and transportation science.
3. Learn and apply the key components of an e-PBL unit to meet the needs of your students and Virginia Standards (force, motion, energy; electricity and magnetism; human impacts on the environment, sustainability; modeling).

Registration includes a hotel room for Wednesday night, breakfast, and lunch, plus 7 hours of recertification points.

Donna Sterling Institute Registration: \$100

(Institute registration fee does not include registration for the VAST PDI)

[Link to Register](#)

Registration Opens March 15 and Ends October 31, 2023

Donna Sterling's vision of problem-based learning (PBL) as a means of teaching and integrating science with math, engineering, technology, and language arts is timeless. She was committed to meeting the diverse needs of our students through culturally responsive and equitable practices. Her legacy lives on in the Sterling Institute which supports teachers in developing and enacting PBL units in their instruction through a 7-hour professional development experience.

Here is your chance to learn how to implement this powerful teaching strategy!

Instructors include Robin Curtis, Dr. Elizabeth Edmondson, Dr. Amanda Gonczi, Dr. Suzanne Kirk, Russ Kohrs, and Dr. Jennifer Maeng.



Russ Wayland Mini-Grant for Teachers Application

sponsored by the Virginia's Section of the American Institute
of Professional Geologists (AIPG)

Applications are due August 20

In 1993, the Virginia's Section of AIPG established a mini-grant program to improve the teaching of Geology in the schools (K-12), Public and Private. The section has allocated \$1,000 to fund approved proposals for this year.

Applicants must be currently employed as classroom teachers and must be a member of VAST or WVSTA. Applicants must agree to share the outcomes of this project with other teachers through in-services and/or a presentation at the VAST PDI or the WVSTA conference.

Recipients are also expected to share the outcomes of the project with the members of the Virginia's Section of the AIPG at one of their yearly meetings.

The review committee is looking for proposals that will result in more hands-on activities, and a better understanding of the importance of geologic resources, and/or geologic principles. The grant may be awarded to one applicant or split among several applicants (to be determined by the AIPG selection committee). Grant monies are not intended as remuneration and should not be considered as such. The AIPG selection committee may elect to not make an award if it feels that none of the proposals meet the goals of AIPG.

Name: _____

Home Address: _____

City: _____ State: _____ Zip: _____

Home Phone: (____) _____ Years of Teaching Experiences: _____

School: _____ Grades Taught: _____ No. of Students: _____

School Division: _____ (County/City) Courses Taught: _____

Project Will Involve Developing (*check all applicable*):

Labs: _____ Field Trips: _____ Guidebooks: _____ Curriculum: _____ Other: _____

Please Provide a **Brief Description** of the Goal(s) / Purpose of the Proposed Project:

On an attached page, with your name and signature, please provide:

- A) A detailed explanation of the project, including expected outcomes;
- B) How many students (and teachers) will benefit;
- C) A timeline (when you will start and expect to finish);
- D) A detailed budget (how you propose to use the monies);
- E) How you propose to evaluate the expected outcomes.

Signature of Applicant

Date Submitted

AIPG Evaluators and Dates:

1) _____ 2) _____ 3) _____

Please submit to:

Susan Booth - 134 Twin Lake Circle - Newport News, VA 23608

Science For All George Dewey

Restoration

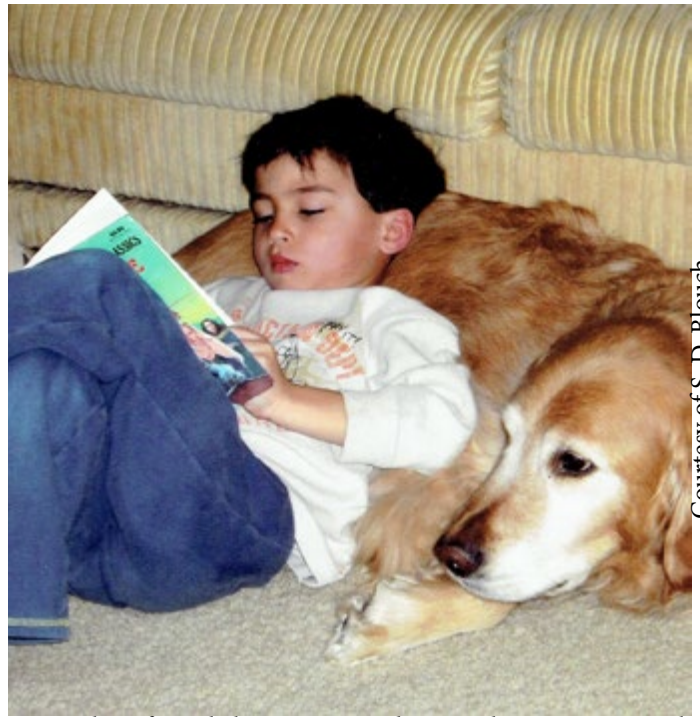
**Hope is not optimism which
Expects things to turn out well,
But something rooted
In the conviction that there is good
Worth working for.**

— **Seamus Heaney**
Irish poet

“Glendalough. The one place that had given them hope. That is where I had to go, because when you have lost everything, you find something else to keep you going.”¹ So said Lark as he pulled himself up on that Irish beach after a dark and perilous journey from his home in America.

This story is told by Silas House (Kentucky’s current poet laureate) in his dystopian novel, *Lark Ascending*. The setting is during the Hard Times when the world had grown smaller and louder, in the words of Lark, the young protagonist. Born in the Before Time, before the raging fires destroyed forests and food in Australia, then Europe, then western, southern, eastern US, before total governmental collapse, famine, no electricity, and vigilante bands roaming the landscape, killing all and anything getting in their way, Lark describes how power groups (the Fundamentalists, the Rebels, the Nays, the Banished) tried to control the uncontrollable. Dogs and cats, at first roaming in wild packs, were eliminated because of their competition for food; people were murdered when too diseased, too aged, or injured, or unhealthy. In such a setting for survival, cold brutality reigned.

Lark and his parents set out on foot from Maryland to Maine where they survived in mountain wilderness for some seven years. His father and mother taught him subsistence agriculture, enduring continual armed attacks, bombings and destruction between warring Fundies and Rebels, continually moving and escaping, but to where? The Slaughters had begun: priests, professors, artists executed, supposedly for making armaments, accused of treason, stealing, destroying property. It was literally a time of every person for themselves, ultimate selfishness, love abandoned. Lark’s family lived with another in a cave to escape persecution, yet their goal was to cross into Canada where the last boat was to leave Nova Scotia for Ireland, toward a special place of refuge and restoration, Glendalough. Canadians patrolled to keep them out, Fundies to keep them in. Rifle shots killed Lark’s two closest friends, and



Courtesy of S. D. Blouch

Two close friends learning together — therapy is mutual.

their mother, consumed by rage and regret, drove a knife deep into his father’s leg.

With much tension and arguing, the four survivors managed to walk for 18 days to the port where a two-masted schooner was to depart across the Atlantic; 44 left, 19 (including 7 children) were all who remained after weather and disease had taken their toll as the damaged boat approached the Irish coastline. Even there, there was no welcome to refugees: mines planted in the water, drones from above, and bullets strafing across the sea destroyed what was left of the boat, leaving Lark the sole survivor.

The rest of the tale focuses on twin themes involving Lark’s encounters with two Irish survivors: a beagle whose collar identified him as “Seamus,” and Helen, a woman 30 years his senior who had led Irish Rebel defenses as the beloved “Black Fox,” and was found and rescued by adoring survivors. In such a brutal world where trust and compassion had all but vanished, the remaining story concerns restoration and hope; hence, the title, *Lark Ascending*.

In Lark’s childhood, dogs had been outlawed, yet through pictures he had learned and remembered about a beagle’s temperament: “intelligent, determined, merry, and gentle.” Seamus served as comforter for both Lark and Helen: “He knew how to be still and let his stillness make folks feel better.”¹ The author adds a thoughtful observation that

when a dog and a person look one another in the face it is as though each were reading the other's mind. In a world where fear had totally taken over the thoughts and actions of people, this young man and this dog had each suffered deepest pain and loss, yet created and strengthened a mutual bond of trust. The Irish woman once commented to Lark, "...if we can't trust a few people in this world, then there's no point at all...It's one of the things that gets us through."¹ There's an important message for our classrooms today.

Silas House's skill in helping us see the world, both tragic and beautiful, through the eyes of dog and human, can enable us teachers, in our "real world," to see more clearly and therapeutically the impact of recent and continuing events upon our young persons, the traumas which directly and indirectly affect their equilibrium and mental health. Though less extreme than in the novel, these traumas are equally pervasive. Our children and adolescents are immersed in an adult-created sea of violence, innuendo, and disinformation, to say nothing of the physical and cultural warfare they create. Too many of us adults are skilled at ignoring or disregarding warning signals, pointing out accusingly that it's always *their* (Fundies, Rebels, Nays, Banished) problem, not ours.

Warning lights concerning student mental health have been flashing for some time. In January [Newshour, 15 January 2023] PBS reported on Early Warnings: America's Youth Mental Health Crisis that a help line [Youth Line] based in Portland, Oregon and staffed by a highly trained and supervised teen staff, had fielded 1400 calls in 2013 from all across Oregon. In just 8 years, the number of callers had exploded to 24,786 from across the entire country. A children's emergency hospital in Portland (2022), already suffering from severe staff shortages, had diagnosed fully 30% of its patients as "acute psychiatric kids." Some of the teens on the help line had weathered storms of depression themselves; as one supervisor commented, "We underestimate how much young people can do for young people." As one volunteer recognized, "We're not trained to solve everything," and we know when to call in professional help. From the PBS podcast series, "On Our Minds," [Student Reporting Labs] comes more evidence of the great value of teens talking with teens.

With more or less continual access to news events on TV and social media, we all are immersed in this sea of information, disinformation, and misinformation, but young minds are less able to distinguish fact from fiction or reality from illusion. In her book, *Alone Together*, Shirley Turkle addresses the paradoxical loneliness and

sense of alienation the world of IM, chats, tweets and video shots can produce. As one student put it, "I end up feeling too lonely, just typing all day...when someone sends you a text or IM, you don't know how they're saying something (serious or a joke)."²

Add to these storms of messaging (both literal and subliminal) the traumas created by violence inflicted upon our schools, and the stresses experienced by our children increase even further. This was especially evident last September when swatting hoaxes (calls to people or organizations posing false shooting reports) appeared in many Virginia school districts, from Charlottesville to Culpeper to Arlington. Although these hoaxes occurred in other states (Arkansas, California, Colorado, Florida, Missouri, and Texas) [Education Week, 12 October 2022], collectively they create an atmosphere in which thoughtful quality learning is unlikely to occur.

By April this year, the US has endured an average of one mass shooting (greater than four deaths) every week. Beyond this sad list come the data for school shootings: 16 so far this year, also an average of one every week; three of these have occurred here in Virginia. We hear a lot these days about post-traumatic stress disorder (PTSD); perhaps there is also something like an intra-traumatic stress disorder operating within our children and adolescents.

These occurrences increase the general malaise and anxiety brought on by the COVID-19 pandemic. On top of the problems of disproportionate internet access, general absences from in-person and virtual classes, and personal grief and feelings of disorientation from deceased family members or friends which have gripped large numbers of our students, cyberattacks such as those occurring as schools opened up in 2020, not only disrupted virtual and hybrid learning, but closed schools for in-person use, too. Fairfax County Schools was hit by a ransomware attack just as schools were opening for the year. Doug Levin, founder of the K-12 Cybersecurity Resource Center, commented, "Everybody is on edge and has very little [emotional] tolerance for these sorts of disruptions." In Miami-Dade Schools, one of their own students did the hacking and disrupting.

Just last fall, the CDC reported a wave of seasonal flu and RSV (respiratory syncytial virus) which closed some schools in Virginia as well as in Alabama, Kentucky, Louisiana, Michigan, and Wisconsin. Yet this alone does not explain the significant increase in missing students from public schools' rosters nationwide. According to analysis by Stanford University's Big Local News project

Thomas Dee, AP data from all 50 states show 230,000 students simply disappeared, not counting moves out of state, home schooling, or private school enrollment. [Education Week, 22 February 2023] Results showed 42% of high school students experienced persistent feelings of sadness or hopelessness, up 14% from 2019 and 50% from 2011; 22% considered suicide, 18% made a plan, and 10% actually attempted suicide. Though no analysis of causes was done, the survey director cites as likely candidates changes in how we interact with one another, increases in misinformation, societal conflict, and social isolation. Donna Houseman commented as an experienced psychologist in child development [EdWeek, 8 March 2023] that the pandemic has wreaked havoc on the mental health of people of all ages.” Unlike adults who may have learned how to manage challenging emotions, most children are just beginning to learn self-regulation. “When the brain is overwhelmed with dysregulated emotion, it cannot learn... Teachers and children need to have social-emotional learning as a preventive intervention model woven into their daily activities.” This illustrates the essential nature of relationship in growing our children. As a middle school special-education teacher from Missouri commented [EdWeek, 5 January 2022], “Nothing works if you don’t have relationships...I try really hard every year to let them know...they’re worth fighting for.”

We teachers tend to be so content-driven that we may overlook the strengthening value of positive relationship. I sometimes wonder if the lack of these relationships might be at least partially responsible for the current decrease in the number of students seeking post-secondary education.

But, harking back to the novel, *Lark Ascending*, the power of the ancient canine-human bond may be too often overlooked. There is tremendous tension within our schools as both teachers and students feel undervalued and under-appreciated. A recent feature in *Education Week* [EdWeek, 8 February 2023] explains the value of the relationship between therapy dogs and the school community of which they are a part. Some students appear to have been developmentally frozen at the time the pandemic began. As an elementary school counselor from Morris, Oklahoma put it, “[our] dogs provide a sense of safety that helps [students] gather the courage to ask adults for help.” School districts in Virginia as well as Colorado, Michigan, and Oklahoma have used funds from the K-12 relief fund to finance the extensive training needed for both dog and handler which success in a school setting requires. This also helps restore a vital sense of community amid the stormy seas of our current national and trans-national traumas. The sources of depression run deep and intense for too many of us, and we

hear a lot of warnings about how detached and dismissive we are of the connections between wild animals and humans. We know that without vigilance, viruses can cross the wildlife-human barrier and cause devastation in both directions.

And yet, cannot increased sensitivity to relationships within the biosphere bring healing and restoration as well? Fossil records teach us that the bond between *Canis lupus familiaris* and *Homo sp.* has existed for over 26,000 years, about ten times longer than the And yet, cannot increased sensitivity to relationships within the biosphere bring healing and restoration as well? Fossil records teach us that the bond between *Canis lupus familiaris* and *Homo sp.* has existed for over 26,000 years, about ten times longer than the domestication of the horse. We speak of domestication of the dog, yet at a deeper level could not the dog have domesticated us, at least from a canine perspective? In a similar way in *Lark Ascending*, Helen spoke of that thin place, Glendalough, “It is hard to say if a place makes people a particular way, or if the kind of people who congregate there shape the place.” Certainly, this is true of our school communities, too. There is reciprocity of expectation and of hope between a dog and a human in the sense the poet, Seamus Heaney, meant it: “...the conviction that there is good worth working for.”

As an old man, Lark spoke my own sentiment wholeheartedly: “The most unfair thing in the world is that dogs do not live as long as we do.”

George

A VAST Life Member, George Dewey is a former VAST President, former NSTA District VIII Director, Presidential Awardee, and Albert Einstein Distinguished Educator. He taught physics in Fairfax County, NBCT since 1999. He can be reached at:

gt dewey3@outlook.com

1. House, Silas. 2022. *Lark Ascending*. Algonquin Books of Chapel Hill.
2. Turkle, Shirley. 2011. *Alone Together, Why We Expect More from Technology and Less from Each Other*. Basic Books.

FIELD TRIPS ARE BACK!

Nothing is better than the sights and sounds of young minds discovering the awesome science all around them! From dissections to engineering challenges, there is something for curious minds of all ages at the Science Museum of Virginia. If you're looking for a scientific adventure, but are unable to visit us in-person, we also offer a wide variety of Digital Demos.

Learn more at smv.org/groups



2023 VAST Contact Information



President
Stephanie Harry
president@vast.org

President Elect
Lori Pawlik
president.elect@vast.org

Past-President
Becky Schnekser
Expeditionschnekser@gmail.com

Vice President
Michael Pratte
vice.president@vast.org

Secretary
Janet Lundin
secretary@vast.org

Treasurer
Jimmy Johnson
treasurer@vast.org

PDI Committee Chair
Dr. John Kowalski
pdi@vast.org

Editor, *The Science Educator*
Jean Foss
newsletter@vast.org

Executive Director
Susan Booth
executive.director@vast.org

Communications & Webmaster
Dr. Denny Casey
communications@vast.org

Prof. Learning & Content Chair
Coordinator
Dr. Eric Pyle
pyleej@jmu.edu

Parliamentarian
Andy Jackson
asjackson1963@gmail.com

Journal Editors
Dr. Joi Merritt, merritjd@jmu.edu
Dr. Angela Webb, webbaw@jmu.edu
journal@vast.org

VAST Regional Directors

Regional Director Coordinator – Thomas Fitzpatrick tfitzpatrick@rcps.info

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Region I TBA

Region II Heather OverKamp
heather.overkamp@portsk12.com

Region III Margaret Greene
mggjmu73@gmail.com

Region IV Marie Peaches
marie.peaches@acps.k12.va.us
Meghan Waymire
waymirmid@pwcs.edu

Region V Dr. Robbie Higdon
higdonri@jmu.edu
Dr. Angella Webb
webbaw@jmu.edu

Region VI Angelo Bonilla
abonilla@rcps.info
Thomas Fitzpatrick
tfitzpatrick@rcps.info

Region VII Jinx Rasmussen
jrasmussen@bvps.org
Donna Rowlett
donna.rowlett@scottsschools.com

Region VIII Dr. Ben Campbell
campbellbk@longwood.edu

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Mission of the Virginia Association of Science Teachers (VAST)



- inspire students,
- provide professional learning opportunities,
- build partnerships,
- advocate for excellence at the school, local, state and national level.

Please send articles, letters to the editor, or labs by the submission deadline, July 1, 2023, for inclusion in the next Newsletter.

Please consult the website for up-to-date information, VAST forms for awards and mini-grants, advertising and current PDI information: vast.org



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