



VAST's Vision:
Excellence in Science Education
Through Innovation

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VAST.Org

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

The Science Educator

Spring 2022

A Publication of the Virginia Association of Science Teachers

Vol. 70, No.4

70th Anniversary
Professional Development Institute

Williamsburg22

November 10 - 12

“Reconnecting Virginia’s Space, Place, & Contributions to Science”

PDI Registration

The VAST PDI returns to an in-person event following two years meeting virtually because of COVID.

We are inviting all educators to share their expertise by doing a presentation at the PDI. Consider doing either a presentation as a single presenter or teaming up with a colleague or two.

Complete information about the PDI and Donna Sterling Institute can be found on the “Annual PDI” page, [click here](#).



[Click here](#) to go directly to the online Presenter Proposal Form.

Registration for the PDI, ticketed workshops, ticketed field trips, and ticketed meals opens March 15.

Hotel Reservations at the per diem rate will opens March 15.

Registration for the Donna Sterling Institute will opens March 15.

Come join us in Williamsburg as a presenter, attendee, and/or exhibitor. We look forward to once again being able to be together in person!

John Kowalski, PDI Committee Chair, PDI@vast.org Susan Booth, VAST Executive Director, executive.director@vast.org

2022 PDI Logo

This year's theme, *Reconnecting to Virginia's Space, Place, and Contributions to Science* comes to life within the logo through thoughtful symbols representing each of the theme's elements. Claiming the center space of the logo is the *Chesapecten jeffersonius*, state fossil of Virginia found in the same region as this year's Professional Development Institute and in 1993 with the efforts of high school students, officially named the state fossil. The red salamander commands the lower left edge of the logo, representing the efforts of young 4-H members of Virginia to protect them, leading to the 2018 law naming the red salamander as the official salamander of Virginia. Both of these elements demonstrate the importance and

results of citizen science, field studies, and local leaders contributing to scientific investigations. The perimeter of the logo encapsulates all of the components with woven eastern redbud branches and blooms. This symbolizes not only the native redbud tree, but the interconnectedness of all of the opportunities that Virginia has to offer from rich indigenous history and presence in the commonwealth, sea to summit geography, and trailblazing scientific discoveries. Altogether, these icons representing the great Commonwealth provide a platform to advocate for science in Virginia, in all learning spaces for all learners.

Becky Schnekser, President

[Expedition Schnekser Website](#)



This is a call to arms...
Please help spread the word to get exhibitors

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

VAST PDI Goes In-Person in 2022



We are excited to be planning our first **Professional Development Institute** (PDI) held face-to-face since 2019. Thank you to all who have attended during the years affected by the pandemic. VAST could not have managed to survive without our loyal supporters and we hope participation at the PDI was positive for your businesses and programs.

VAST PDI 2022 will be held on **Nov. 10-12** in Williamsburg at the DoubleTree by Hilton. VAST celebrates our **70th Anniversary 2022**. The theme this year is **"Reconnecting Virginia's Space, Place, & Contributions to Science"**.

All registration materials can be found on the PDI page at [VAST.org](https://vast.org)

Would you like to exhibit?

Exhibitor registration opens March 1.

Commercial Exhibitor Booth (by October 5)	\$625 per booth
Not-for-Profit Exhibitor Booth (by October 5)	\$350 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.

Would you like to present?

Presentation submissions open on March 1.

All presentations must be submitted by June 15.

Commercial Exhibitor Presentation Fee	\$150 per presentation
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****Special Deal:** Commercial exhibitors who register by May 1 and will receive one free presentation spot (value:\$150).

Sponsorship Opportunities:

\$1000 Level Sponsor

- one rotating banner ad on the PDI app and webpage
- digital program listing (name, logo, link)
- 1/4 page ad in newsletter, blurb-280 characters
- 10% discount on VAST 2023 PDI Exhibitor booths

\$2500 Level Sponsor

- two rotating banner ads on the VAST PDI app and webpage
- digital program listing (name, logo, link)
- 1/2 page ad, blurb-300 characters
- eblast ad distributed to all VAST members
- 15% discount on VAST 2023 PDI Exhibitor booths

\$5000 Level Sponsor

- five rotating banner ads on the VAST PDI app and webpage
- digital program listing (name, logo, link)
- FULL page ad in newsletter
- eblast ad distributed to all VAST members
- 25% discount on VAST 2023 PDI Exhibitor booths

Advertising in the VAST newsletter, "The Science Educator"

Reach more than 2000 science educators with your ad and a live link to your website for. For more details go to the VAST website. [Click here](#)

Many thanks. We look forward to seeing you in November.

Susan Booth, VAST Executive Director email: executive.director@vast.org

We hope you reserve your hotel room at the hotel, DoubleTree by Hilton, in Williamsburg, to help defray costs. [REGISTER](#)

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Greetings to VAST 2022



Dear Expedition Team,

Yes, that is you, the one reading this letter. You are a part of this great Expedition I call “2022” the 70th Anniversary of Virginia Association of Science Teacher’s advocacy for science education. It may come as no big surprise that the title of this expedition is so verbose, while there is so much to say about science, education, and all that it encompasses. The importance of science education and experiences are paramount to a thriving society, we are no strangers to this narrative. I want to take a moment to acknowledge all of the progress made in the past seventy years, all of the humans involved in building what we are today and trusting all of us to push forward and continue this good work. We have great tasks ahead that I know we will be able to accomplish together in this expedition. I also hold a literal and proverbial empty chair next to me through all of this as we meet, plan, implement, and seek to innovate within our spaces, for those who are not with us in this work whether a temporary absence as they have moved to other good work, passed on from this life, or are under or not yet represented within our science community. This chair shows your place, the one we are keeping for you, the one we seek to fill with your perspective, good works, and humanity. We are actively seeking humans from these communities to join us. I especially want to acknowledge the rich indigenous communities who are the original stewards of the spaces and places we now inhabit and call home. In my own space here in the Tidewater region of Virginia, I acknowledge the Cheroenhaka (Nottaway), Lumbee, and Chesapeake tribes, thank you for your stewardship of the places I call home. I invite you as well, to take a moment to identify and acknowledge the indigenous cultures from your own space and place.

The theme of this year’s Professional Development Institute is “Reconnecting Virginia’s Space, Place, & Contributions to Science” celebrating all that we know and love about our space and place here in the Commonwealth; remembering and acknowledging heritage, history, and historical perspectives as we drive forward and continue to advocate for great science education practices, knowledge, and the humans doing the work. I am passionate about being in the field to remain connected to science practices, protocols, and current investigations and making this work accessible to my young explorers and scientists as well as other educators within our state. That is relevant and impactful professional development. This year’s PDI will be filled with relevant, timely, practice-based experiences and presentations, which I encourage each of you to consider offering through a presentation proposal. There is something powerful about harnessing the lived experiences of one another to collectively become a powerhouse of information that in turn brings exceptional experiences for all of our young scientists, in all corners of Virginia. What can you offer as a presentation? How can you help make science come alive for all learners? How can you help advocate and advance field-based learning for young scientists? Let’s fill this PDI with hands-on explorations based on the great work you are already doing in your own spaces and places. We’re back in person, and ready to reconnect in a safe way—are you registered for this year’s PDI yet?

Your 2022 Expedition Leader,

Becky Schnekser,
VAST President 2022

Virginia Enrichment Repository for Science Educators

Simply log in to the VAST.org webpage and choose the [VERSE](#) on home page header to access content created by VAST members and presenters for your professional learning and development.

View PDI session recordings
from the 2020 and 2021
VAST PDI Archive - now.

Visit VERSE frequently
to watch it grow.

Work in
Progress!

Customized professional learning is the new standard for both formal educators and informal. Access to both current and vetted learning resources allows an educator flexibility in both topic, medium, and usage. As an innovative association, VAST recognizes that through its multi-decadal archive of both the Journal of Virginia Science Education and quarterly volumes of The Science Educator these resources continue to hold value for current and new VAST members. The VERSE, as it continues to grow, will allow subject specific searches for archival topics in both article and video segments as past PDI presentations are added and future regional and other professional materials are contributed. Membership use will vary between personal learning which can include recertification to members using materials for school site use within a grade level, department, and/or PLC.



Content articles from *The Science Educator*, the *Journal of Virginia Science Education*, and sessions from the last two virtual PDIs have been ‘tagged’ with content and grade level identifiers to help target both your interest and learning.

STEM

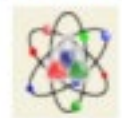
Elementary

Middle
School

HIGH SCHOOL

Earth and
Space Science

LIFE
SCIENCE



SE

As you collaborate with your school PLC team(s) or work to accumulate professional development points for your next Virginia teaching license renewal, consider the quality VAST materials to inspire, innovate, and enhance your teaching and student learning.

Remember that the VERSE is expanding in 2022, check back frequently and consider how you can add your unique talent and educator insight! It is a work in progress. Newsletter articles from 2012-2021 are accessible currently and are protected by requiring members to log in. The main tab takes you to the links page. At the links page you can select icon specific pages to access specific pdf's. Please note that many articles contain elements of multiple tags and are represented the on multiple icon page list.

Need help navigating, contributing to the VERSE, or suggestions on how to seek PD points? Please contact Mike Pratte VERSE Chair at vice.president@vast.org.

Also remember: VERSE is only available to VAST members! Not a member? Visit VAST.org, and click on the “Join” button. Membership is only \$25 a year for all of these resources! And don't forget, PDI registration includes a year membership!

2022 PDI Registration

Registration opens March 15th

Presenter: \$155

Attendees:

\$170 Earlybird

\$205 Regular Registration

\$99 Full Time Student Earlybird

\$130 Full Time Student

\$100 Saturday Only



**VAST PDI
INFORMATION:
Forms and
Registration**

2022 VAST Professional Development Institute

"Reconnecting Virginia's Space, Place, & Contributions to Science"

November 10-12, 2022



Double Tree by Hilton, Williamsburg

50 Kingsmill Road, Williamsburg, VA 23185

phone: 757-220-2500

Complete information about the 2022 VAST hotel can be found on the [Annual PDI page](#). Click on Hotel Information, Prices, Online Reservation Form, WiFi, Menus, and Parking.

The link to access the 2022 VAST PDI Double Tree reservation page is active.

Hotel Room rate: \$101.00 + 12% tax + \$2.00 occupancy fee per night = \$115.12 (The GSA per diem government rate **may go up or down in August from this estimation.**) Check for updates on the VAST website.

To register for hotel, go to [VAST Hotel Reservation Link](#). Note: be sure to use the discount code "TEA". Reservations need to be made before October 8, 2022 and are based upon availability.

Be sure to check the VAST website for updates and over-flow hotels if they are needed. Meal Menus for the PDI, the hotel floor plan, WiFi and parking information are available on the website.

Go to the [VAST Annual PDI page](#) for up-to-date information.

2022 PDI Schedule-at-a-Glance

(Draft as of March 1)

Wednesday November 9, 2022

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

Thursday November 10, 2022

Ticketed Donna Sterling Institute (separate registration from the PDI)

Title: Using Problem-based Learning in Finding Smart Solutions in Energy and Climate Science

7:30 AM Continental Breakfast and Check in

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

Elementary:

Speakers: Angie Meredith and Pam Caffery

Title: STEM Challenges for Elementary Educators

Sponsor: Hand2Mind

Middle School:

Title: STEM Challenges for Middle School Educators

High School: TBD

Title: Drones for High School Students

3:15 PM – 5:30 PM Pre-Conference Ticketed Fieldtrips, #1 and #2

6:00 PM – 7:15 PM Welcome to the PDI, General Session I

Dr. Jeanette Davis AKA Dr. Ocean

Science is Everywhere, Science is for

Everyone: The Art of Storytelling

Sponsored by Hand2Mind (door prize giveaway)

7:30 PM – 9:00 PM Night with the Exhibitors (cash bar)

Friday November 11, 2022

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

7:30 AM Continental Breakfast in the Exhibit Hall

7:30 AM – 10:30 AM Exhibit Hall Open

8:00 AM – Noon Ticketed Field Trip #3

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

Dr. Raquel Fleskes, Genetic Anthropologist

The Science of Making Science Accessible:

DNA and Community Building

(door prize giveaway)

Noon – 1:00 PM Ticket Buffet Lunch

12:30 PM – 6:00 PM Exhibit Hall Open

1:00 PM – 5:00 PM Ticketed Field Trip #4

1:10 PM – 2:00 PM Concurrent Session 3 Breakout Presentations

2:15 PM – 3:05 PM Concurrent Session 4 Breakout Presentations

3:20 PM – 4:10 PM Concurrent Session 5 Breakout Presentations

4:25 PM – 5:15 PM Concurrent Session 6 Breakout Presentations

6:15 PM – 7:00 PM Ticketed Dinner (cash bar)

7:00 PM – 8:15 PM Speaker and Awards Ceremony

Dr. Carolyn Williams

Title: TBD

8:30 PM – 10:00 PM Regional Science Competition and DJ



PDI Williamsburg22

Saturday November 12, 2022

7:30 AM – 10:30 AM Registration Desk Open

7:30 AM Continental Breakfast in the Exhibit Hall

7:30 AM – 12:15 PM Exhibit Hall Open

8:30 AM - 9:20 AM Concurrent Session 7 Breakout Presentations

9:35 AM – 10:25 AM Concurrent Session 8 Breakout Presentations

10:40 AM – 11:30 AM Concurrent Session 9 Breakout Presentations

11:30 AM – 12:15 PM Last Chance to Visit the Exhibit Hall

(Exhibitor Door Prizes - No other events scheduled, exhibitors open till 12:15 pm)

12:15 PM – 12:30 PM Pickup Ticketed Box Lunch to eat during General Session III

12:30 PM – 1:45 PM General Session III, Meet your VAST Officers

Dr. Bruce Holmes

Title: TBD

(Extra-Special Door Prizes Giveaway)

2:00 PM – 4:00 PM Ticketed Field Trip #5

Updates will be available on the VAST website.

MARK YOUR CALENDAR



- Registration for the PDI, ticketed workshops, field trips, and meals opens March 15.
- Hotel Reservations at the per diem rate opens March 15.
- Registration for the Donna Sterling Institute opens March 15.

Come join us in Williamsburg as a presenter, attendee, and/or exhibitor.

We look forward to being able to be together again in person!

THE ONLINE PRESENTER PROPOSAL FORM IS NOW OPEN UNTIL JUNE 15.

The VAST PDI returns to an in-person event following two years meeting virtually because of the COVID epidemic. We are inviting all educators to share their expertise by doing a presentation at the PDI. Consider doing either a presentation as a single presenter or teaming up with a colleague or two to do a presentation.

Click here for complete information about the PDI

Click here for the direct link to the online Presenter Proposal Form.

Questions?

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

Susan Booth, VAST Executive Director, executive.director@vast.org

COFFEE TALK
@ 10:00 AM



VAST Coffee Chat with the Content Chairs. VAST wants you to remember you are not in this alone.

Looking for a way to collaborate with other teachers in your content? Then come be a part of the of the VAST Coffee Chat with the Content Chairs.

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

Spring Coffee Talk Dates

April 2 - Share and Take - June 4 - End of Year Celebration - September 24 - Back -2-School

You are invited to a Zoom meeting.

When: Apr 2, 2022 10:00 AM Eastern Time (US and Canada)

Register in advance for the April 2 Coffee Talk: [click here to register](#)

After registering, you will receive a confirmation email containing information about joining the meeting.

2022 PDI Speakers

Meet the first two exciting general speakers for the upcoming, in person, Professional Development Institute. We are so pleased to introduce them. Plan to attend and to be inspired by them.



Dr. Jeanette Davis AKA Dr. Ocean

<https://www.drjeanettedavis.com>

Science is Everywhere, Science is for Everyone: The Art of Storytelling

Dr. Jeanette Davis also known as Dr. Ocean is a Marine Microbiologist and author of best-selling children's books *Science is Everywhere*, *Science is for Everyone* and *Jada's Journey Under the Sea* created to explore and diversify science. Dr. Ocean research ranges from fisheries management to bacterial symbiosis to find new medicines from the ocean. She is cited in *Science* for helping to discover a marine microbe that fights cancer. Dr. Ocean attributes her success to the strong foundation that she received at Hampton University. Dr. Ocean continues to be an ocean advocate and travels around the world to help manage ocean resources.



Dr. Raquel Fleskes

<https://www.raquelfleskes.com/>

The Science of Making Science Accessible: DNA and Community Building

Raquel Fleskes is an anthropological geneticist conducting post-doctoral research in the Department of Anthropology at the University of Connecticut. Her research falls at the intersection of ancient DNA, archaeology, and community engagement, and has been funded by the National Science Foundation and National Geographic Society. She uses ancient DNA and population genetic methods to understand the population history of the colonial period of North America. These methods are then interpreted alongside archaeological and other bio-molecular techniques to understand lived experience, ancestry, and relationships on the early colonial American frontier. She is passionate about science education to engage students of all ages in the process of learning and discovery.

Help Recruit VAST Members

Mini-grants • Social Media • Professional Development • Awards • E-notes • Networking

VAST membership gives you many benefits and we want to make sure that you know what they are and take full advantage of them.

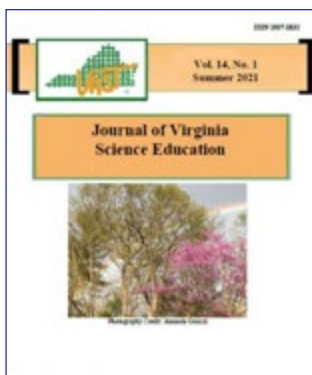
The Virginia Enrichment Repository for Science Educators, VERSE, is available to all members. It is being updated and 'tagged' with content and grade level identifiers to help target both your interest and learning. It is still a draft and a work in progress. It includes content from *The Science Educator*, the *Journal of Virginia Science Education*, and sessions from the 2020 and 2021 PDIs. [See more information on page 4.](#)

Journal of Virginia Science Education, JVSE, is a peer-reviewed professional journal produced by VAST. The principal criterion for the acceptance of a manuscript is that it contributes to strengthening the teaching and learning of science. Teachers-to-be, educators of all levels, school administrators, and informal science educators are invited to submit papers to be considered for publication in *Journal of Virginia Science Education*.

The Science Educator is full of information on national science education news; Virginia Department of Education happenings; announcements from partnering organizations; news from VAST regions; innovative science teaching strategies; grant information; professional development opportunities, workshops, and courses; and award information and applications. It is published five times each year. All members should receive a link to the current issue in January, March, May, July, and October in an email.

The VAST website, VAST.org contains the most recent news and updates. When VAST members login to the website they have

access to **VERSE** and archives of journal and newsletter. There you may renew your VAST membership; check your membership status; and update your membership information.



Peer Reviewed Journal



Newsletter



VAST.org Website

Recognition In Science Education (RISE)

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

Donna Sterling Exemplary Science Teaching Award

Donna Sterling was a visionary science educator with a passion for working with science teachers and developing habits of inquiry-based teaching. Most recently, her leadership in the **Virginia Initiative for Science Teaching and Achievement (VISTA)** focused on teacher professional development. In 2022, the award will be given to both an exemplary elementary and secondary teacher. See more information on the Sterling and other awards on the [VAST web site](#).

VAST Mini-grant program provides seed money for innovative curriculum activities which expand learning opportunities for science students. Individual or team applications are welcome.

Your membership in VAST is your portal to resources, discounted conference rates, and

connections to other science teachers in Virginia. Be sure to renew your membership so that you do not miss out on all the resources that VAST has to offer. Your participation is important to the VAST community! Encourage your colleagues to join. Why not gift a new colleague or your student teacher?

Memberships

Donna Sterling Institute

Using Problem-based Learning in Finding Smart Solutions in Energy and Climate Science

November 10, 2022; 8am-3pm

In Person: Double Tree by Hilton-Williamsburg, VA

We are pleased to announce the 2022 Donna Sterling Institute with Don Haas as the featured speaker and in conjunction with NEED Energy.

Participants will:

1. Use a PBL approach to learn about climate and energy.
2. Engage in National Energy Education Development (NEED) activities to support understanding of climate and alternative energy.
3. Learn and apply the key components of a PBL unit to meet Virginia Standards and the needs of your students.

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

Donna Sterling Institute Registration: \$75
(Institute registration fee does not include registration for the VAST PDI)

[To register, go to the VAST PDI web page.](#)

Registration Opens March 15 and Ends October 31, 2022

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: Jaclyn Claytor, Robin Curtis, Dr. Elizabeth Edmondson, Emily Hawbaker, Suzanne Kirk, Dr. Jennifer Maeng, Dr. Anne Mannarino, Dr. Juanita Jo Matkins, Dr. Jackie McDonnough, LoriAnn Pawlik, and Dr. Eric Pyle Retiring President NSTA.

Elementary (K-6) & Secondary (6-12) Teachers: Apply for the 2022 Donna Sterling Exemplary Science Teaching Award

Donna Sterling was a visionary science educator with a passion for working with science teachers and developing habits of inquiry-based teaching. Her leadership in the Virginia Initiative for Science Teaching and Achievement (VISTA) focused on elementary and secondary teacher professional development. This award recognizes that exemplary teachers engage in continuous improvement and is designed to support a professional development plan for the improvement of science teaching. In 2022, the award will be given to an exemplary elementary teacher and an exemplary secondary teacher. **For the elementary award the 6th grade teacher must be teaching in an elementary setting. For the secondary award the 6th grade teacher must be teaching in a secondary setting such as middle or high school.**



Becky Schnekser and Juanita Jo Matkins

Each awardee will receive a total of **\$4000**. In addition, registration and travel costs will be reimbursed to attend the 2022 VAST PDI to receive the award and to the 2023 VAST PDI to present a session on the professional development experience and outcomes. Each awardee will receive \$3000 at the VAST PDI in 2022, held at Williamsburg November 10-12, 2022. The remainder will be awarded after the awardee presents at the next VAST PDI and submits an article to the newsletter *The Science Educator* or the *Journal of Virginia Science Education*.

Deadline for Applications: August 15, 2022

Donna Sterling



To Apply:

1. In your cover letter, include information on yourself, including your preferred name, your home and school addresses, and phone numbers and email address(es) where you can be reached. Tell us how many years you have taught, where, and what subjects and grade levels.
2. In no more than two pages, single-spaced, describe an inquiry-based science unit that you taught. Describe how your unit is student-centered and includes community engagement. Give evidence that the unit was effective. Evidence documents such as student work can be submitted separately and will not count toward the two-page limit.
3. In no more than two pages, single-spaced, describe your plan for professional development, using the funds received through the Sterling award. These plans may include summer courses, attendance at workshops, study abroad opportunities, instructional materials development under the guidance of experts on-site, etc. Feel free to be creative in your plan. Submit the professional development description with anticipated outcomes, including plans for a presentation at the 2023 VAST PDI. Tell how this award will help you become a better teacher of science and will support the development of leadership skills. Tell about your plans for writing an article about your experiences.
4. Submit three letters of recommendation based on direct observations of teaching. One letter must be from the science supervisor or someone serving in that capacity, a second letter must be from the principal, assistant principal, or instructional leader, and a third letter must be from a fellow teacher or a parent. Letters should address the following: Why is this teacher a good candidate for this award? What qualities do they exhibit as teachers that make the recommender think they will use the funds from the award to improve their practice as teachers of science?

All materials must be submitted by 5 pm on August 15, 2022.

Submit applications and letters of recommendation to Dr. Juanita Jo Matkins, jjmatk@wm.edu.



Mineral Corner



[Download](#)

2022 Virginia Mineral Directory

The team at Friends of Mineralogy Virginia Inc. (FMVA) just released the third issue of the Virginia Mineral Directory. This is your one-stop resource for mineralogy and geology related resources in the state. The directory covers mineral societies, key literature, museums, mineral shows, online resources, and rocks shops in the state. This is a growing directory and the team is always looking for new additions. Our hope is this document can be a useful tool for teachers to provide students interested in geology and minerals. FMVA is a relatively new organization and is excited to be your primary resource for all mineral-related issues.

If you have any questions or would like to learn more about FMVA resources, then please feel free to contact our team at:

friendsofmineralogy.virginia@gmail.com



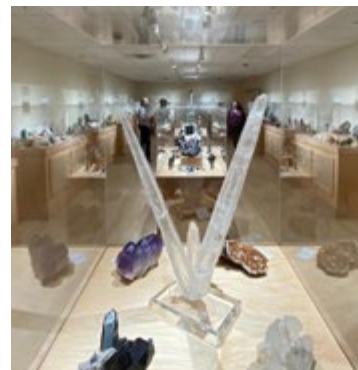
Additional Mineral News:



January Speaker Series: Exploring Martian Geology and Habitability through Mineralogy



2022 USGS Critical Minerals List: The new US critical minerals list has been announced! There are now 50 commodities critical to US economic and national security.

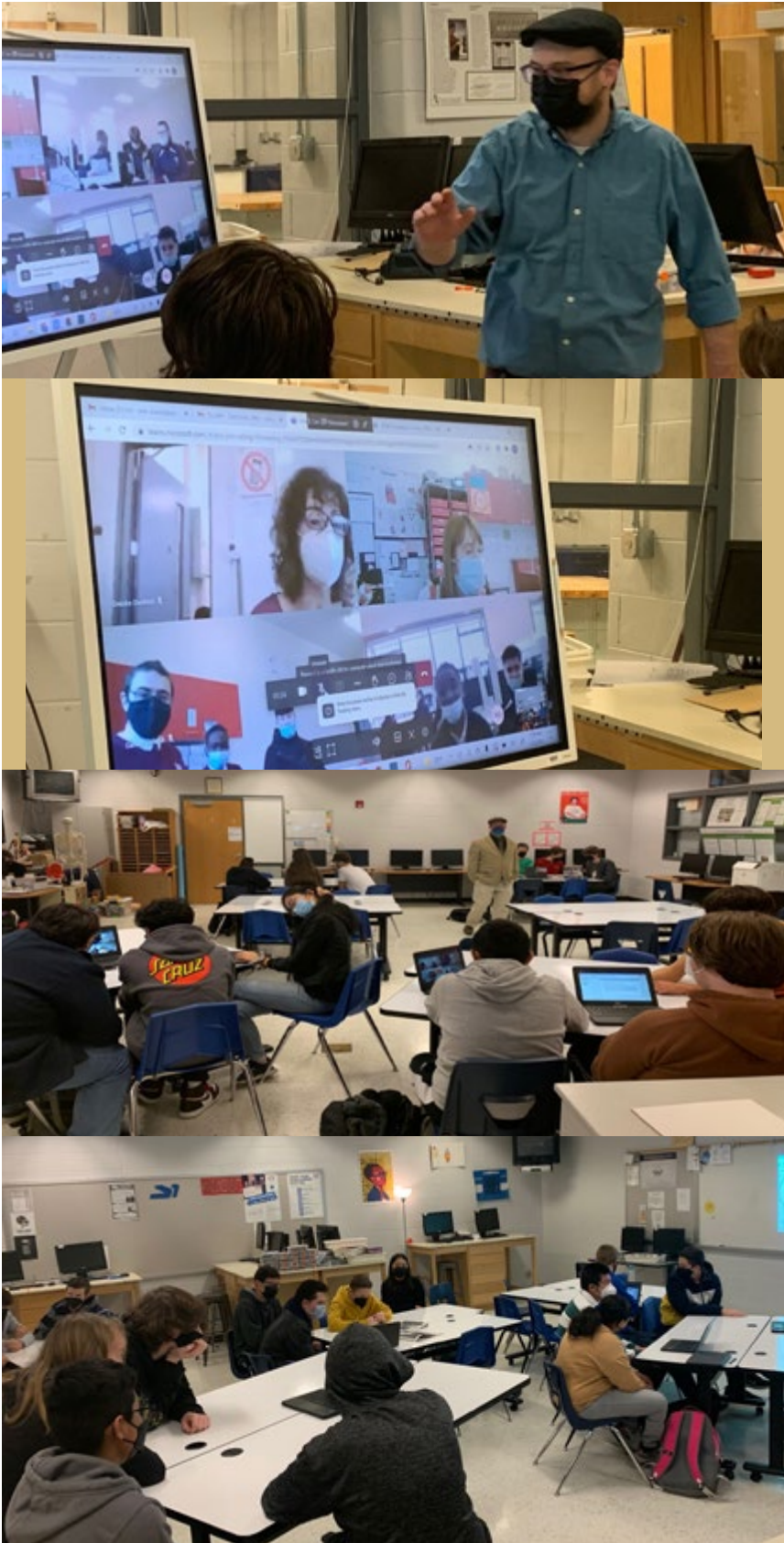


JMU Mineral Museum: The state has a new mineral museum hosting a collection worth over \$16 million. This is a must see for all teachers and students in the Commonwealth!



Connecting Globally to Learn Locally

Robbie Higdon, Region V Co-director



Andy Jackson and Seth Shantz, teachers at Harrisonburg High School in Harrisonburg, VA, have been collaborating with Coláiste Chú Chulainn (CCC) in Dundalk, Ireland to develop a series of problem-based instructional modules. The first module centers on the use of renewable energy resources within Ireland and Virginia. Within this module, students conduct research, formulate questions, and develop possible plans for the installation of the next power generating stations in each location. Then, students present their findings and ask questions of each other via virtual exchanges. On January 25, Harrisonburg High School Governor's STEM Academy students engaged with students at CCC centered on the use of nuclear energy resources. During this exchange, students from both schools posed questions as to why nuclear energy is used in the United States, yet banned in many European countries. This was the second video exchange in the 2021-2022 academic year between students at these two schools. Plans are being made to hold a final video exchange between the two schools for students to present the summary of their findings.

Robbie L. Higdon, PhD
Department of Middle, Secondary, and
Mathematics Education
James Madison University
Harrisonburg, VA 22807





ROCK'IN Regions Summer PD



VAST is pleased to announce a partnership with VTCA and FMVA. Would you like to visit a quarry, collect rock samples, walk in the footprints of dinosaurs and experience modern mining in Virginia? These unique experiences 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! **You MUST be a member of VAST to attend. Become a member at vast.org. Anyone registering who is not a member of VAST will be “refunded”.**



Friday, June 17, 2022 - 9:00 AM – 5:00 PM EDT
Holston River Quarries Inc.
5169 State Park Road - Dublin

VAST Rockin' PD: Come Take a Dip in Ordovician Seas at Holston River Quarry!

Experience the ancient marine sediments of the Ordovician oceans with cool trace fossils and sedimentary structures! VAST Members Only. Become a member at vast.org.

Salem Stone's Holston River Quarry has some great trace fossils and bedding planes with tons of mudcracks and sedimentary structures. Strontianite and calcite mineralization are common. Come experience all of this on a tour of the quarry! Take home educational materials, rock samples, new learnings, and new friends!

[REGISTER](#)

VAST Rockin' PD: Come Visit Buckingham Slate!

Come tour the oldest aggregate quarry in the USA! You must be a member of VAST to attend. VAST Members Only. Become a member at vast.org.

Buckingham Slate will provide VAST educators with a tour of its facilities, where aggregate and slate tiles are produced. You will walk away with classroom samples, educational materials, new perspectives, and new friends! Come and experience the quarry and the Arvon, VA area!

[REGISTER](#)



Friday, June 24, 2022 - 9:00 AM – 5:00 PM EDT
Buckingham® Slate
715 Arvon Road - Arvon

VAST Rockin' PD: Come Walk With the Dinosaurs at Luck Stone, Culpeper, VA!

Come rock out with dinosaurs and tour a working quarry! You MUST be a member of VAST to attend. Become a member at vast.org.

Would you like to visit a quarry, collect rock samples, walk in the footprints of dinosaurs and experience modern mining in Virginia? This unique experience is free of charge to VAST Members and open to educators of all grade levels. You will tour the quarry, have a chance to bring home quarry product samples for your classroom, leave with educational materials, and be provided with other awesome attractions in the area. You will also have the chance to network with other teachers. Most of all, you will have fun! Earn professional development hours, if approved by your school evaluators! You MUST be a member of VAST to attend.

[REGISTER](#)



Friday, July 22, 2022 - 9:00 AM – 5:00 PM EDT
Luck Stone, Culpeper Plant
18244 Germanna Highway, Culpeper

VAST Rockin' PD: Check out Some of the Youngest Sediments in Virginia!

Ever Wonder Where the Ancient Appalachians Ended Up?

About this event Branscome's Charles City pit provides important materials for roads and large construction projects in the Williamsburg, VA area and beyond. These materials are here because the Appalachian Mountains eroded over the last 248 Ma! Come check out their remnants here! Tour this facility. Leave with samples from pit, educational materials, and new friends! You MUST be a member of VAST to attend. Become a member at vast.org. Anyone registering who is not a member of VAST will be “refunded”.

[REGISTER](#)



Friday, July 29, 2022 - 9:00 AM – 5:00 PM EDT
Branscome Charles City Pit
16001 Tomahund Drive, Williamsburg

VAST Needs YOU! Nominations for 2022 Positions



Come and serve your profession and your fellow educator with distinction and honor. Nominate someone, or yourself, for one of our open positions. A few are elected prior to the 2022 PDI while others are open now!

Nominations also includes grants and awards. Do you know of a deserving fellow educator who would benefit from the resume building prestige of being a VAST RISE Award winner? In a few months time, you can nominate them!

Do you have an idea that needs a little cash to get off the ground? Soon, you'll be able to apply for mini-grants through VAST to help make it happen!

Annually, VAST elects a group of individuals according to our current bylaw requirements. Consider nominating someone who you think would serve well in 2023 as:

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.

Secretary: The Secretary shall keep a permanent record of all business transacted by VAST; keep the minutes of meetings for the general membership, Executive Committee, and Board of Directors; distribute copies of the minutes to members of each group in a timely manner; and perform such duties as are usually incidental to the office. The Secretary shall be elected for a term of three years.

Regional Director (Regions 2, 4, 6, and 8 are up for 2023): Regional Director 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 submission of newsletter articles, awards nominations, and the solicitation of presenters for the VAST conference.

You can nominate someone here! Or, you can use the form attached to this newsletter to fill out and send in to Russell Kohrs at kohrsrh@gmail.com.

[Click here to download a VAST Nomination Form. Nominate someone today.](#)

Expedition Science: Empowering Learners Through Exploration

Becky Schnekser (Author and current VAST President)

ISBN 1951600827, 9781951600822

Published by DAVE BURGESS CONSULTING Incorporated, 2021



Feeling uninspired in your teaching journey? Then you are not alone. Pick up this book and you may begin to look at science teaching in a new light by becoming inspired. Becky Schnekser is a trained elementary educator who believes that even the most reluctant child can be empowered to become scientists. She documents ways that you can engage your students, using simple ideas and resources. As you read the book, you realize you are on a journey to discover more about yourself, and how to create a mindset that helps students learn. The book is more of a conversation to get you to believe that you can be creative in teaching science, and getting

students to collect data, analyze it, and share their results, by doing science. Becky makes no bones about it, that the students must learn through trial and error, and her job is to guide them to discover science on their own. She talks about changing her classroom into a cave, with students collecting data on animals as they crawl in their bat cave. This is one of the many simulated classroom experiences that can inspire budding scientists. Everyday she teaches she makes the students use a password to enter the classroom. The word is based on the topic she is teaching for the day. They may not know the word in the beginning, but by the end of the lesson they do.

Becky likes students to play, observe, learn, and make connections and then she brings the learning together to make sense. The book is full of stories of how Becky can adapt a lesson into a full-blown hands-on experience, using local resources. I liked the one she shared in Belize, about using long grass to engineer the tallest home-made hats and using mud to record the results on a wall, as supplies were non-existent. Becky believes story telling is a strong teaching tool that should be developed more by teachers. Becky tells her students about her travel to the Amazon and the amazing Boiling River Project. She lists resources for teachers who wish to create their opportunities to share stories with students and introduces the importance of learning about indigenous people and weaving this into your instruction.

This book does not give you the answers on how to teach science, but it makes you create a mindset to succeed in the classroom. Becky challenges you to begin your own Expedition Science. Good luck with your journey.

Reviewed by Anne Mannarino, VAST Regional Director Coordinator



Welcome Our New Region I Director

The new Region I Director is Carla Kersten.

Carla's email is ckersten@glnd.k12.va.us.



Virginia Instructors of Physics

Save the Date for April 23. VIP is a grass-roots, teacher-led organization for teachers and professors of physics and physical science. We meet in the spring to exchange teaching ideas, strategies, labs, and demonstrations. Check out our website at <http://vipphysics.org/> to learn more about our group and follow us on Facebook - Virginia Instructors of Physics (VIP).



Online Vaccine Educational Research Study



What is this study about?



Researchers from Georgetown University Medical Center and Hampden-Sydney College are conducting this study to help young people learn more about vaccines-what they are, what they do, and how they can help prevent diseases.

This research study has been approved by the Hampden-Sydney College Institutional Review Board (IRB) and is designed to find out if 10th grade students will learn new information after watching educational videos about vaccines.

Who can participate?

This study is open to any 10th grade student in the Virginia public school systems with access to a computer or mobile device with internet capability.

What will you need to do if you decide to participate?

It will take about 80-90 minutes to complete the study.

Participants will be asked to:

- Complete a brief survey with 16 multiple choice questions (10 minutes).
- Watch some educational videos. One group will watch some educational videos about vaccines. The other group will watch educational videos about the biology of cells. This will take about 60 minutes.
- Complete another brief survey with 20-25 multiple choice questions (10-15 minutes) after watching the videos.

One of the student's parents will need to give permission first and then the student will also need to sign a form agreeing to be involved in this study.

What will you get for participating?

All participants will have the opportunity to view the vaccine videos which contain important information about vaccines.

Participants who successfully complete the study will receive a check for \$40 for contributing their time to this research.

What if you have any questions?

If you are interested in participating or have any questions, please contact Dr. Edward Lewin's research team at mwolyniak@hsc.edu.



These materials are neither sponsored nor endorsed by the Board of Education the Superintendent of Schools, or this school.



Virginia Junior Academy of Science Scholarships

There are two large scholarships offered by the Virginia Junior Academy of Science in the Environmental field. To check out other awards and more information please visit www.vjas.org information is found in the VJAS Handbook.

SCHOLARSHIPS PROVIDED BY THE VIRGINIA ENVIRONMENTAL ENDOWMENT

The Frances and Sydney Lewis Environmental Science Scholarship

This \$5,000 four-year college scholarship may be awarded to the student whose project presented at the VJAS Research Symposium evidences the most significant contribution in the field of Environmental Science. The purpose of the award is to stimulate interest in environmental sciences and to enable promising young students to pursue undergraduate studies in a related field. The Virginia Environmental Endowment (VEE) and the VJAS offer this scholarship in tribute to the outstanding and generous services of VEE Directors Emeriti, Frances A. Lewis and Sydney Lewis.

The Henry W. MacKenzie, Jr. Environmental Scholarship

This \$5,000 four-year college scholarship may be awarded to the student whose project presented at the VJAS Research Symposium evidences the most significant contribution in the field of Environmental Science dealing with the James River Basin and Chesapeake Bay. The purpose of the award is to stimulate interest in environmental sciences and to enable promising young students to pursue undergraduate studies in a related field, The Virginia Environmental Endowment (VEE) and the VJAS offer this scholarship in tribute to the outstanding and generous services of Judge Henry W. MacKenzie.

Information to Judge at the Virginia Junior Academy of Science

<https://vjas.org/judges.html> (link to the form)

The Virginia Junior Academy of Science will hold its 2022 VJAS Research Symposium virtually on Saturday May 14, 2022. The purpose of this meeting is to give approximately 750 students in grades seven through twelve from throughout the Commonwealth the opportunity to present papers, which will report original research they have conducted. At least a month before the virtual presentations, judges will receive research papers to read and score online, via the Reviewr web platform. On Saturday May 14, papers will be virtually presented every 15 minutes from 9 a.m. through 4:30 p.m. More information about the online judging process and virtual presentations including web links, will follow in early Spring.

How can we accomplish this goal? In order to achieve this monumental task many volunteers are needed, who are experts from all fields of science. We are looking for volunteers in both the Reader round and the Judging round. All reading and scoring of research papers will be done online via Reviewer platform.

A READER is a volunteer with expertise to screen, read, and score submitted research papers (15-25 papers), from March through early April. The purpose of this round is to determine cutoff scores for students to be accepted into each of our categories (we can only accept a finite number of submissions for the May Research Symposium).

Only the accepted papers are then distributed to JUDGES. A JUDGE is a volunteer who will read and evaluate no more than

twenty-two papers, from mid April to May. The judges are asked to be present in the virtual meeting (on Saturday, May 14), who will listen to live oral presentations given by the students who authored the research papers, to complete the scoring.

If you wish to serve both as a Reader and a Judge, we will do our best to place you as a Judge in the same category as a Reader, to maximize overlap of research papers.

Help us to make this an event to remember and register today by filling out and by submitting this form. Registering today will secure your first choice in categories. You will, at a later date, receive notification of your status including category you will be reading and/or judging, access to online research papers to read, scoring rubric, schedule, and other important information. We truly appreciate all that you do and hope that you will be willing to contribute your time and effort again.

Please pass this information on to any others who may be interested in assisting VJAS. The entire program is made possible by your volunteer efforts, and its success rests on your willingness to help. If you have any questions, please do not hesitate to contact me at 1-757-897-3104 (phone). Thank you in advance for your assistance. Susan Booth, VJAS Director, susan.science@gmail.com Please complete by March 15, 2022 or you may not receive your first choice. Disclaimer: Completion of form and reply email from the Academy does not mean you have been accepted to judge.

NASA Night Sky Notes for March 2022

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

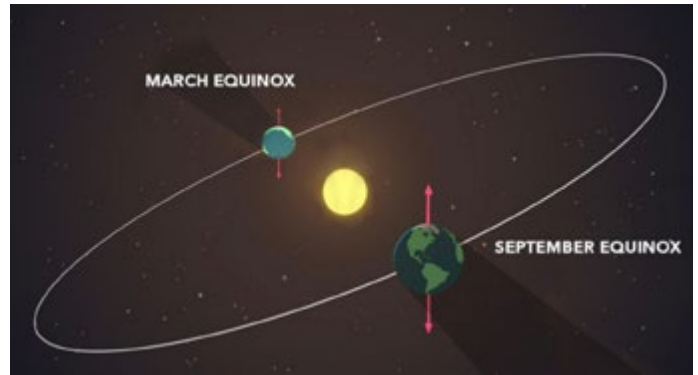
Embracing the Equinox

David Prosper

Depending on your locale, equinoxes can be seen as harbingers of longer nights and gloomy weather, or promising beacons of nicer temperatures and more sunlight. Observing and predicting equinoxes is one of the earliest skills in humanity's astronomical toolkit. Many ancient observatories around the world observed equinoxes along with the more pronounced solstices. These days, you don't need your own observatory to know when an equinox occurs, since you'll see it marked on your calendar twice a year! The word "equinox" originates from Latin, and translates to **equal** (equi-) **night** (-nox). But what exactly is an equinox?

An **equinox** occurs twice every year, in March and September. In 2022, the equinoxes will occur on March 20, at exactly 15:33 UTC (or 11:33 am EDT), and again on September 23, at 01:04 UTC (or September 22 at 9:04 pm EDT). The equinox marks the exact moment when the center of the Sun crosses the plane of our planet's equator. The day of an equinox, observers at the equator will see the Sun directly overhead at noon. After the March equinox, observers anywhere on Earth will see the Sun's path in the sky continue its movement further north every day until the June solstice, after which it begins traveling south. The Sun crosses the equatorial plane again during the September equinox, and continues traveling south until the December solstice, when it heads back north once again. This movement is why some refer to the March equinox as the **northward equinox**, and the September equinox as the **southward equinox**.

Our Sun shines equally on both the Northern and Southern Hemispheres during equinoxes, which is why they are the only times of the year when the Earth's North and South Poles are simultaneously lit by sunlight. Notably, the length of day and night on the equinox aren't precisely equal; the date for that split depends on your latitude, and may occur a few days earlier or later than the equinox itself. The complicating factors? Our Sun and atmosphere! The Sun itself is a sphere and not a point light source, so its edge is refracted by our atmosphere as it rises and sets, which adds several minutes of light to every day. The Sun doesn't neatly

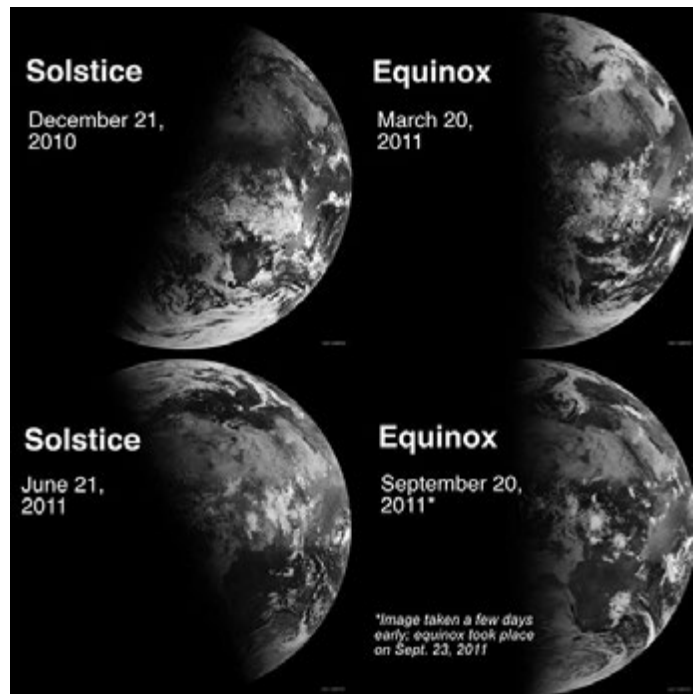


This (not to scale) image shows how our planet receives equal amounts of sunlight during equinoxes.

Credit: NASA/GSFC/Genna Duberstein

wink on and off at sunrise and sunset like a light bulb, and so there isn't a perfect split of day and night on the equinox - but it's very close.

Equinoxes are associated with the changing seasons. In March, Northern Hemisphere observers welcome the longer, warmer days heralded by their **vernal**, or spring, equinox, but Southern Hemisphere observers note the shorter days - and longer, cooler nights - signaled by their **autumnal**, or fall, equinox. Come September, the reverse is true. Discover the reasons for the seasons, and much more, with [NASA at nasa.gov](https://nasa.gov)



Scenes of Earth from orbit from season to season, as viewed by EUMETSAT. Notice how the terminator - the line between day and night - touches both the North and South Poles in the equinox images. See how the shadow is lopsided for each solstice, too: sunlight pours over the Northern Hemisphere for the June solstice, while the sunlight dramatically favors the Southern Hemisphere for the December solstice. Credit: NASA/Robert Simmon

[Click for a pdf of this article with larger images.](#)

[Menu](#)

Donta the Dragonfly Explores the Blue Ridge Spring 2021

**Cindy Duncan Teacher Professional Learning Coordinator
Chesapeake Bay Foundation**

**Kathie Driscoll, Education Director
The Nature Foundation at Wintergreen**



Donta has emerged once again to explore the Dominion and has set her course towards Virginia's Blue Ridge Mountains on an unusually warm February day. As she flitted about westward catching brief moments of warm updrafts, she wondered why spring hadn't arrived. She noticed a tall mountain in the far distance with what appeared as encapsulating dark clouds. Suddenly a northerly wind ushered her towards the mountain and she realized the warm air she felt when she began her journey quickly changed to shivering icy winds. She could faintly see a sign that said welcome to Wintergreen. "Winter-green?! I don't see green anywhere. Did I start my journey too early?" she asked herself. Snow was blowing through the howling winds. Donta noticed a strange metal bucket from what looked like a maple tree. "Sugar maples," she said to herself, "aren't located this far south!" Donta knew that sugar maple trees were only native to regions in the north. They thrived in cooler climates because they required a hard freeze for proper dormancy. Donta was surprised to see sugar maples so far from their northern regions.

Donta perched herself on the lid of the metal can and looked under the lid with her very efficient compound eyes and found water dripping from the tree. "Oh," she thought, "this is a technique humans use to gather sap from the tree and turn it into syrup. Wow! They can do that in Virginia?" Before her question was answered, a brisk wind scooped up the dragonfly and she struggled to navigate towards a place of safety. Donta noticed a school nearby. "That looks like a place, I can hide under the eaves until this wind and brisk snow dies down." Donta noticed light coming from a classroom and saw children laughing. Donta flew into a paper birch tree that stood next to the window and peered inside. She saw a woman passing around rocks. "Okay class, let's talk about why Virginia rocks! Virginia's Geology has a rich and fascinating history," said the woman to the students. "We know the Earth had a violent beginning.



Virginia had its share of turmoil as well with mountain building events, volcanic activities and glaciation that shaped the landscape that we see today." Each of the rocks the students studied had their own story to tell. The igneous, metamorphic and sedimentary rocks that make up the rock cycle illustrated how the Earth processes over geologic time, changing a rock from one type into another. The woman explained

their role in the type of vegetation unique to the Blue Ridge Mountains and at Wintergreen. The Pleistocene Epoch that spanned the earth's most recent period of repeated glaciations, caused weathering and erosion of the Blue Ridge Mountains and allowed only cold climate trees, like spruce and fir to grow. As the earth warmed up and glaciers retreated north, the conifers died off leaving a few cold tolerant trees such as the sugar maple and paper birch behind. The woman explained to the students trees like the sugar maple, that managed to survive warmer temperatures at higher elevations, like Wintergreen are known as "climate relics".

"We are lucky to have sugar maples here," the woman explained as she passed out maple syrup samples, from Wintergreen's own maple trees! "Ah ha," realized Donta as she nearly fell from the soft bark of the paper birch, "that's why I saw sugar maples and this unusual tree, they are here as the result of Virginia's last Ice Age".

As the cold wind died down, Donta tested her wings and began her journey home. She looked backed and heard the students happily slurping up the sweet substance.



Wintergreen lies in a section of the Blue Ridge Mountains called Old Appalachia where rock formations were formed approximately 1.1 billion years ago. While rich in geological history, it also offers beautiful vistas and gorgeous wildflowers. The Nature Foundation at Wintergreen (TNFW), a non-profit organization functions as a center for research and education. TNFW encourages understanding,

Persistence and Resilience

In everything that yields gracefully, there must be resistance. Bows are beautiful when they bend only because they seek to remain rigid. Rigidity that slightly yields, like Justice swayed by Pity, is all the beauty of the earth. Everything seeks to grow straight and happily nothing succeeds in so growing. Try to grow straight and life will bend you.

— GK Chesterton
The Everlasting Man (1925)

As the yellow bus headed down the final street, the children's conversations were a mix of anticipation and a bit of apprehension. As they chattered along, their bus made its final turn and stopped at the guard house of a maximum-security prison near Philadelphia. Both bus and passengers showed premature signs of stress and too-infrequent care. But thanks to the dedication and persistence of Philadelphia schools' Deputy Chief of Family and Community Engagement, Jenna Monley, who had listened carefully to needs of some incarcerated fathers, the children along with their custodial caregivers had come for joint art and literacy projects with their dads. The fathers had missed terribly the chance to share some of their children's school experiences. Unabashed by the protocols regarding student privacy, funding, and parental permissions, Morley persevered and grew this visit into an ongoing program serving a growing group of twenty incarcerated fathers before being paused due to Covid19. [*Education Week*, "Leaders to Learn From," 16 February 2022.] Her commitment affected teachers and administrators as she developed her district-wide approach to family engagement, revealing the power of trust and deep listening to the needs of her community.

Donata continued:

appreciation, and conservation of the natural and cultural resources of the Blue Ridge Mountains of Virginia. TNFW oversees the conservation of 6000 acres of open space and forests. Besides managing a 35 mile trail system and 6,000 acres of wilderness, TNFW offers educational programs through guided hikes, scientific conferences, outreach programs for area schools, as well as on-site field trips for students of all ages.

TNFW's nature center is open to the public Tuesday through Saturday, free of cost. For more information about its programs and facilities, visit TNFW website at www.tnfw.org.



Photo by Lukas Rodriguez from Pexels

Try to grow straight and life will bend you.

Jacob Bronowski began his 1973 book, *The Ascent of Man*, with this line: "Man is a singular creature." Later on, he describes man as a "social solitary," going to great lengths to explain human evolution in the contexts of continually changing environments, both natural and social. As I ended the last column with the quotation, "None of us lives to himself, and none of us dies to himself," what follows are some student- and community-driven solutions to the challenges we have faced during our two-year-old pandemic.

A great many of these challenges have resulted from the tension, both personal and communal, within the duality inherent in social-solitary. Our English language is rich in variations of nouns and verbs containing the prefix, "com" (from the Latin "cum", meaning "with," or "together"). We can reflect on these examples: **common, comrade, committee, community, commotion, communicate, commit, commemorate, combination, compassion, connection**. One can think of many others besides these. If we have learned one vital lesson during our solitary times in

Continued on next page.



Contact Information:

Education programs (any): Kathie Driscoll, Education Director, youth@tnfw.org, (434) 325-8169
Written for Donta by Kathie Driscoll, Education Director, The Nature Foundation at Wintergreen

and outside of our schools in recent months, it is the values imbedded in these words. For, beyond our personal needs as individuals, there are within our community equally significant needs to care for one another. Here are several ways in which this has recently played out:

In August last year [*Education Week*, 18 August 2021], EdWeek's staff interviewed seventy-five teachers from nine states. Student care was top priority: food and technology, student emotional well-being, then academics and learning. Eighty-five percent reported their schools adopted "no-harm" grading and most teachers spent significant time building and sustaining connections with their students. Ninety percent of these teachers reported little-to-no experience with remote instruction, and seventy percent reported colleagues as their main source of help. Early on, between March and late July 2020, 150 new Facebook teacher groups appeared with over 500,000 members. In exchange for coaching in teaching chemistry concepts, a first-year teacher in one state coached another more experienced teacher in techniques of remote instruction. Teacher-to-teacher professional development thrived. As the article summarized, in this experiment no one asked for, teachers assuredly felt their own significance and agency. As the editors explained, "There is something magical that happens when people **pull together** toward a **common goal**." [Emphasis added.]

In another issue devoted to getting our students back on track, even when that track is shifting, there was a pathway showing seventeen "Leadership Lessons from the Kitchen Table." [*EdWeek*, 25 August 2021] Over 80% of these lessons involved the importance, the necessity, of working together: "Don't go it alone, get all hands on deck, remember your duty of care to others, convince people..., give every student a connection [not just to the internet], don't lose sight of mental health, communicate with purpose don't let the crisis go to waste, rely on your local peers, overcommunicate instead of overreacting, communicate with your staff first, find your common mission, articulate your priorities, find hope in the worst of times. Perhaps the last point is the most important. So many of us, students especially, have felt sidelined and short-changed. How many of these leadership lessons have been learned by the Philadelphia engagement Deputy, Jenna Morley!

As the human dimension overlaps the academic, *Education Week's* Leaders to Learn From celebrated its tenth anniversary with a set of seven "Lessons for Leading in Tumultuous Times." Summarized, they include being brave and tenacious, communicate, collaborate, enlighten and engage your community, give students a voice, ground decisions in data, and be humble. Could these not also serve

as touchstones for those of us as classroom teacher leaders as well?

One important contribution learned over the past two years came from Shanita Burney in DC public schools: increasing levels of school-parent and teacher-parent communication. With many parents now in the same room as their students during virtual learning times, conversations with teachers have shifted away from discipline to, "Here's what we can do together to make sure your child continues to grow and learn." [*EdWeek*, 25 September 2021.] Again, notice the expanded environment for learning to include school and home.

However, not every home is equipped for efficient or reliable home-learning. North of the Ozark National Forest in Arkansas, the small rural Harrison School District has developed a GOBSmobile (named after the district's goblin mascot). A refurbished school bus parks in youth centers, store parking lots, and local schools providing science labs, demonstrations, books, and reading materials needed for AP courses. In its first year, the mobile classroom has served over 2200 students across the district's two hundred miles. Teachers and district leaders had worried over the lack of hands-on experiences, especially science, math, and reading,

Philosopher and poet GK Chesterton's opening quote has many points of reference here. From prison systems to our continuing but outdated industrial-era system for schooling, these solutions to current challenges surely demonstrate that "in everything that yields gracefully, there must be resistance." Seeking to remain rigid, great beauty and compassion can be shown in yielding to the dual exigencies of the solitary and the social. For all of us who desire to grow straight, life will indeed bend us. From a contorted tree, we can imagine several of the factors which have shaped it: from the natural forces of wind, freezing weather, water supply, and disease, to the human effects of urban air quality or water or injuries from cuts, climbing, or soil compaction, redirecting all attempts to grow straight. As teachers, do we not face them all in our children, to say nothing of the cross-stresses amplified recently between family and professional obligations as that tiny virus has impacted global progress?

Or, as Ron Berger (Harvard School of Graduate Education, Senior Advisor of Teaching and Learning at EL Education) points out, despite the good intentions of mandating standardized testing and exams to label students after this pandemic year, there are real dangers on over-reliance on remediating learning loss, using such tests to categorize students rather than as a diagnostic tool. [*The Atlantic*, "Our Kids Are Not Broken," 20 March 2021.]

“Schools should also recognize their students’ resilience over this past year, support their healing and emotional growth, and honor them with meaningful and challenging academic work, not with remedial classes.” Having taught middle school for 25 years, Berger stresses the importance of students feeling safe, seen, and valued. He stresses students collaborating in their own growth by maintaining and presenting portfolios to their peers and others outside of class, and by leading their own family conferences. Berger’s jogging friend once commented, “There’s only one thing that matters about a teacher: that they believe in you.” Sap has to keep flowing in that tree.

To an amazing degree, our young persons have shown us a way by the examples they have set for us. “Pulling together toward a common goal,” as mentioned earlier. It is their voices and deeds which show us not only the dangers, but their resilience to those pressures surrounding us. There are the young global climate activists like Sweden’s Greta Thunberg and these four teens who have established records, examples of the linked global community of which they are a part. [*Christian Science Monitor*, 14 February 2022.] Jordan Romero (13), the youngest person to scale Mt. Everest and youngest (15) to scale all the world’s Seven Summits; Australian Jessica Watson (16), sailing solo 23,000 miles around the globe in only 210 days; Belgian Zara Rutherford who at 19 was the youngest woman to fly solo around the world; and Gitanjali Rao (15), *Time*’s first “Kid of the Year,” for creating a device to detect contaminants in drinking water in response to the crisis in Flint, Michigan. Is it not also significant that not only have these young persons shown their dependence upon and dedication to their communities, but also that all but one of them are young women? Whatever one’s role or fate, being bent by life can be “all the beauty of the earth.”

Other examples of the sense of compassion connectedness, and community despite all the commotion (another “com” word!) during this time might be found in speedskaters Erin Jackson and Brittany Bowe after the Olympic trials in Milwaukee, Wisconsin. Ms. Jackson slipped and fell, finishing 3rd and missing the only two slots available for Beijing. Ms. Jackson, currently the world’s number-one-ranked speedskater, received a phone call from Ms. Bowe, herself a two-time Olympian. She gave away her slot to Ms. Jackson. (Ms. Bowe had qualified to represent the US in two other races.) “This is bigger than just me...This is about Team USA, and it’s about giving everybody an opportunity to showcase what they have,” she said. [*Christian Science Monitor*, 31 January 2022.] What an example of the recently-changed Olympic motto which now reads “Faster, higher, stronger – together.”

where our schools (staff, assistants, and administrators alike) must navigate a climate of “volatility, uncertainty, complexity, and ambiguity” [*EdWeek* 9 June 2021.], it is gratifying that Chesterton’s tree grows ever stronger. For, is it not the tree that has endured and been tempest-tossed by winds from hell, that the cabinet-maker or wagon-maker seeks? In human terms, the Outward Bound motto puts it like this: Your disability is your opportunity.

Here’s what one independent school in Connecticut has done in its vision for empowering its students as “change makers and problem solvers.” The school’s headmaster has commented, “...I have always been, and always will be, an abiding optimist. That’s why I became a teacher. I take as an article of faith that tomorrow will be better than today, that one small group of people – or one small school, for that matter – really can make a difference.” That statement is carried out in a variety of ways: values such as care in community, championing diversity, equity, and inclusion, inspiring others, respect, compassion; a school powered by students (student agency); being together, not the same; putting more in than you are taking out.

A short article in *The Washington Post* (25 January 2022) carries the byline, “One of the secrets to joy is sharing.” After all the headlines reminding us of the justified negative effects of the Covid19 pandemic, it comes as a surprise that a University of Michigan national poll (“Joy and Stress During the COVID-19 Pandemic”) revealed 83% of persons over fifty had experienced “some” or “a lot of” joy since things shut down that 13th day of March 2020. The writer, Barbara Kingsolver, spoke of her own worst seasons and how she found joy in the midst of sorrow by focusing “for a long time at a single glorious thing...until...Like a stroke victim retraining new parts of the brain to grasp lost skills, I have taught myself joy, over and over again.” Now, the challenge is to have more of that joy experienced by those of us under 50!

These moments often arrive unexpectedly, something like seeing flowers blooming out of a crack in a sidewalk, or, after the harshness of the winter, seeing a flood of crocuses flowing now across my neighbor’s lawn. Once, while hiking in Denali National Park in Alaska, suddenly coming upon a brilliant Alaska poppy, blooming golden on the bosom of a glacier, was another such moment for me. **Try to grow straight and life will bend you.**

George Dewey

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: gdewey3@outlook.com.

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