The Science Educator

Winter 2021 A Publication of VAST, The Virginia Association of Science Teachers ISSN 1945-7405, Vol. 69, No.3

Virginia Association of Science Teachers Awards 2020

Recognition in Science Education Awards

Congratulations awardees !

University/ College Faculty - **Lucinda Spryn**
Thomas Nelson Community College

Chemistry - **Erich Sneller**
Harrisonburg High School, Harrisonburg City

Environmental Science - **C. John Burke Cahill**
Brooke Point High School, Stafford County

Middle School - **Eeman Salem**
Falling Creek Middle School, Chesterfield County

Earth Science - **Kate Kogge**
Community Public Charter School, Albemarle County

Science Educator - **Albert Green,**
Assistant Principal Tabb High School, York County

Resource Teacher - **Jonathan Torch**
Cape Henry Collegiate, Virginia Beach

Elementary (pre K-5) - **Becky Schnekser**
Cape Henry Collegiate, Virginia Beach

Remote Teaching (Middle School)-**Sheryl McLaughlin**
Jones Magnet Middle School, Hampton City

Community Partnership - **Bill McConnell**
Virginia Wesleyan University

Announcing the Launch of VAST Science - VERSE!

In addition to publications such as *The Science Educator* and the *Journal of Virginia Science Education,* this year VAST is expanding its member benefits to include VERSE - the VAST Enrichment Repository for Science Educators. The VERSE vision is to create a comprehensive digital learning center with publications, recorded presentations, and educational materials available to VAST members 24/7!

In-service and pre-service teachers, informal educators, school-level administrators, and division science leaders will have easy access to a growing number and variety of quality learning materials for recertification, content enrichment, and professional growth.

VERSE resources will be based on Virginia Standards of Learning, organized by content and grade level, reviewed for quality, and produced by Virginia educators for Virginia educators.

To give you an idea of what VERSE offers, as a member you now have access to over 120 presentations and support materials from the 2020 PDI (see page 4) and that's just the beginning! Beyond the PDI, we are hoping to provide more recorded content and virtual live learning events in the future.

Check the VAST website for exciting updates and consider how you can contribute your expertise to VERSE.

VAST 2021 Member Survey

In the beginning of the New Year, we would like for you to provide us with what you might want from your membership and what we might gain from you being a member. This is truly a partnership. Ideas and suggestions welcomed.

Survey

Thank you for supporting VAST in 2020, but please consider making a ...

Positive Impact in 2021

During these pandemic times, we have seen our Commonwealth come together to help. Finally, 2020 came to an end, where we find ourselves thankful, but we still have catching up to do. Please consider a financial donation to VAST a 501c3 non-profit to help continue to foster science education in Virginia.

We hope you will consider supporting VAST right now:

1. **Mail a check to the VAST Treasurer.**
2. **Transfer appreciated securities/stock.**
3. **Make a Qualified Charitable Distribution from your IRA.**
4. **Arrange for planned giving (bequests, life insurance, trusts).**
5. **Donate online at www.vast.org.**

On behalf of everyone at VAST, we thank you in advance for your investment in our 2021 programs while wishing you a Happy New Year.

Donate

MENU

President's Corner...

Russell Kohrs, MS, NBCT

Greetings to you all in this 2021, what I know will be a year of hope and renewal. The Virginia Association of Science Teachers is preparing as we enter this new year with not only a major membership increase to over 1400 members, but with plans for an in-person November PDI in Harrisonburg.

This is a great time to leverage your membership and network with other VAST members, particularly in your content area. But, in the spirit of collaboration I also invite you to find new ways to inject excitement into your own teaching by reaching out to colleagues across the curriculum and work at finding new ways to bring science to your students, help them understand complex systems, and explore how science helps society solve problems.

This past year's PDI was a rousing success. VAST was able to deliver the same high-quality professional development that you are used to experiencing. In addition, a repository of these presentations will live on through the VAST website, made accessible to members for continuing professional development experiences and recertification assistance. This is a new but critical way that our board has created to add even more value to your VAST membership. I encourage you to take advantage of this awesome resource.
As I write this, I am in the midst of my 17th year of teaching. There have been a ton of changes in how we deliver instruction, but few (if any) of those changes could have prepared us for teaching during a pandemic. As a field science educator myself, I have had to adjust my instructional approaches immensely for both my high school and community college students, allowing them accessibility to field instruction in a virtual environment. Like you, I'm learning to create new things. We're no longer only educators, we're instructional designers, media specialists, and aspiring IT professionals. Adding all of these new skills to our already dizzying responsibilities has been stressful and challenging. However, it's also led to led to opportunities. This is also true of VAST as an organization. How can we all work together toward solutions to these challenges?

The 2021 PDI theme is "Science, Systems, Solutions". Science helps us uncover knowledge that allows us to unpack deeper understandings of the intricacies and workings of complex systems, which then helps lead us toward solutions to challenges. Zoonotic disease, vaccine development, climate change, etc. are all signs of the complexity we experience this Anthropocene world. Its complex and VAST can provide support for you as we contemplate and act on these challenges. Our organization can support you and help you find opportunities unweave the instructional Gordion Knot that you find yourself dealing with – to help you find solutions that will work for you and for your students in these challenging times. I promise that, we will continue to emerge being stronger and more confident, particularly when we work together.

So, I invite you to walk with me and VAST in this New Year as we find our way through an exciting future that awaits. I look forward to walking with you as your President.

As Thomas Hobbes once said, "*Scientia Potentia Est!*" ("Knowledge is Power")

Russ Kohrs, **VAST President 2021**

2020 PDI Presentations Are Now Available to All VAST Members!

When we began the year, one of our goals was to provide more professional content for VAST members. Then came the challenge of the pandemic and we rose to the occasion by transitioning the annual PDI to a virtual format. That gave us a unique opportunity that we think you will appreciate and be able to use throughout 2021 and beyond!

Prior to the PDI, keynote speakers and presenters shared videos and pdfs. During the PDI, all the Zoom presentations were recorded in both video and audio files, chats were transcribed, and some presenters provided pdfs. Even if you weren't able to attend the PDI, or you did attend but missed an interesting sounding presentation, we have created a comprehensive web page with all the files organized for easy access. From this page VAST members can access all instructional materials including, video and audio recordings and pdfs from the 2020 virtual PDI!

Need points for recertification or just want to expand your science knowledge or instructional pedagogy, there are over 120 presentations and hundreds of support materials to explore across a wide range of science disciplines and levels. To learn more, VAST members go to: www.vast.org/2020pdipresentations/

Dr. Denny Casey

Below: screenshot of the new 2020 PDI Presentations page

Home Teachers Annual PDI Publications About Join us

Home > Annual PDI > 2020 PDI Presentations

Like 0 Share Tweet Share

From this page VAST **members** can access **all MP4 and pdfs** provided by the PDI presenters from the general (prerecorded), live (via Zoom recording), and prerecorded sessions (provided by presenter) by way of a Google Drive. Zoom recordings also produce a m4a audio file and chat transcription. Questions or comments about an individual presentation? Contact the presenter. For a technical issue with a link or viewing a file, contact: pdi.presentations@vast.org

Folders from General Sessions

Special Session	General Session I	General Session II	General Session III
Em Stephens	Dr. Zipporah Miller	Dr. Ken Miller	Dr. Cindy Moss

Folders for VAST Business Sessions

Welcome	Treasurer's Report	Awards Ceremony	Election Results	Call for the 2021 PDI
Michael Pratt, President	Matt Scott, Treasurer	Sandy Pace, Awards Chair	Tom Fitzpatrick, Immediate Past-president	Russ Kohrs, President-elect

Results of the VAST Election

Becky Schnekser - 2021 President Elect Candidate
Robin W. Curtis - Secretary
Tonya Bates - Region II Director
Paula Irwin - Region IV Co-Director
LoriAnn Pawlik - Region IV Co-Director
Tom Fitzpatrick - Region VI Director
Ben Campbell - Region VIII Director

Congratulations new board members. Thank you for serving!

Winter Reflections from a Career Educator and Vast Immediate Past President

As for many, waiting for the proverbial ball to drop on December 31st, provided a moment to put a close to arguably one of the most challenging years for educators and offer hope that 2021 would provide opportunities to reconnect with our students and colleagues in a more traditional way.

Through the chorus of *Auld Lang Syne* and watching socially distanced persons waving on the new year, I asked myself should we completely return to the same method of instruction pre-pandemic. This past year offered instructional variables that were way beyond the control of a classroom teacher to predict and/or control. Even though frequent change became the norm, innovation sparked from both classroom and school division to continue the mission of reaching students. Innovation also sparked from our Virginia Association of Science Teachers organization and was manifest in the form of our virtual Professional Development Institute.

As the ramifications for in person events became evident due to the pandemic, your VAST PDI Committee (Chaired by Dr. John Kowalski) began a parallel planning effort for both a face to face PDI and virtual option. Through the great relationship that Susan Booth (VAST PDI Executive Director) had built over the past years with our venue and the budget and projected costs monitored by Matt Scott (VAST Treasurer), the contract(s) were able to be renegotiated and the association remained financially solvent. The Vision of a virtual event that provided professional learning, the ability for educators to present, and participants to connect could not have been achieved without the technical expertise of Dr. Denny Casey (VAST Webmaster/Communications) who made sure that our virtual meeting capacity was as prepared as possible for our unprecedented event. The glue that may have provided foundation for our experience came from Barbara Adcock (Membership) as she not only brought in the Whova app but also provided expert service and support to our membership before, during, and after the event.

If given space, I could provide in detail how every VAST Board member contributed with presentations, serving as session moderators, announcing R.I.S.E. awards, regional networking meets, and so many behind the scenes support roles that supported over 800 attendees and over 100 live and recorded presentations. I am so proud of our organization and our Board. I am humbled to serve with such dedicated persons who kept "on mission" for our membership as we looked to innovate in a challenging time to continue our proud history of annual professional development institutes.

In closing, as we look forward to a new year, please stay healthy and present for your students in face to face, hybrid, or virtual science instruction. Please look to innovate your methods and materials making science instruction as dynamic and engaging as possible. Please join our new President Russ Kohrs and VAST Board for our Fall PDI in Harrisonburg to reconnect, reflect, and share your story of innovation. Your VAST organization appreciates you.

Take care,

Mike Pratte
Immediate Past President

White House Announces 2019 PAEMST Awardee in Science

Myron Blosser, teaches biology and biotechnology at Governor's STEM Academy. He has received the Presidential Award for Science. Blosser also serves as the co-director of the Governor's STEM Academy at the high school.

Myron E. Blosser, Harrisonburg High School

"My greatest strength has been bringing people together, building excitement around an idea, enabling others to reach their potential, and together achieving great success," said Blosser. "This award is an affirmation that teamwork and collaboration are key to providing exemplary educational opportunities for students."

Myron Blosser has been a science educator for 36 years and for the past six years has served as the Co-director of the Governor's STEM Academy at Harrisonburg High School where he has taught for 21 years. Previously, he taught at Eastern Mennonite School for twelve years and Strasburg High School for three years. He currently teaches freshmen STEM Biology and a senior-level Biotechnology course. Students in Myron's classes are encouraged to conduct scientific research and develop mentor relationships with area and national scientists who can guide and encourage them to develop their research and presentation skills.

Since 1994, Myron has hosted an annual Shenandoah Valley biotechnology symposium for students that is focused on the latest research from prominent scientists, as well as learning biotechnology laboratory techniques. Over 9,000 students have participated in these Symposiums. Myron's pedagogy features a long history of using experiential learning to create excitement in the learning process, including taking students to local farms , conducting research in nearby Shenandoah National Park, and visiting islands in the Chesapeake Bay. Myron has organized month-long journeys for his students across the nation in a discovery experience utilizing national parks and scientists exploring a variety of case studies affecting our nation. In each case, students gather real data and find real answers utilizing a variety of stakeholders.

Myron has presented sessions on experiential learning and student research at many science conferences and has received multiple awards for his teaching at the state and national levels. Myron earned a B.S. in biology education and a M.Ed. in curriculum development from Eastern Mennonite University.

LoriAnn Pawlik's Physics Class Chosen to work with a National Geographic Explorer

Students from LoriAnn Pawlik's physics classes in Prince William County will explore UN Sustainability goals during an Educator-Explorer National Geographic partnership. They are one of 15 classes selected worldwide.

The class has been partnered with Marissa Cuevas Flores, CEO founder of MicroTerra, a circular economy business that transforms agricultural wastewater into sustainable biomass and clean water.

LoriAnn is excited to expose her students to the idea that they are global citizens and that they, can truly make a difference. She said, "I hope that our partnership motivates and inspires each of them to be the changemakers of tomorrow."

LoriAnn is a VAST board member and is a Region IV Regional Co-Director.

> *"This partnership will assist with attitudes, skills, and knowledge to take these students on whatever path they pursue in their future endeavors," she added. "I hope that our partnership motivates and inspires each of them to be the changemakers of tomorrow."* LoriAnn Pawlik

Suzie Gilley is a Recipient of the 2020 Governor's Honor Awards

On December 16, 2020, Governor Ralph S. Northam awarded the Governor's Honor Awards during a virtual ceremony. The awards recognized Commonwealth of Virginia employees who make a powerful impact on the most critical issues facing our communities. They serve as champions for change, provide innovative services, help reduce the cost of government and show their commitment to the values of diversity, inclusion and outreach in our society.
One of the winners of these awards is Suzie Gilley who has presented at VAST PDIs, provided VAST newsletter articles, and supported Virginia science teachers with professional development and resources for many years.

Maryellen Suzie Gilley, Virginia Department of Wildlife Resources

Serving as the Statewide Project WILD Coordinator in Richmond, Ms. Gilley assists learners of all ages in developing awareness, knowledge and commitment resulting in responsible behavior, informed decisions, and constructive actions concerning wildlife and the environment. In addition, Virginia's Project WILD program provides educators with materials that supports Virginia's Standards of Learning. Besides her work with Project WILD, Ms. Gilley is a lifelong member and volunteer for the Girl Scouts Commonwealth Council, truly exemplifying the values and dedication of Virginia's talented state workforce. One of the greatest honors she has received was The Thomas Jefferson Medal for Outstanding Contributions to Natural Science in 2012. The award honors individuals and corporations for outstanding contributions to natural science and natural science education. Suzie has also worked with the Virginia Natural School Recognition Program, applying for schools across Virginia to be recognized for their stewardship and environmental efforts, and serves on the Education Workgroup of the Chesapeake Bay Program.

Congratulations, Susie.

U.S. National Chemistry Olympiad

The Virginia Local Section of the American Chemical Society (ACS) is hosting the U.S. National Chemistry Olympiad (USNCO). Students who attend high school within the boundaries of the Virginia Local Section are eligible to participate. http://acsva.org/virginia-sections-and-regions/

Local Exam: March 27, 2021, online (registration deadline March 5)

National Exam: April 17, 2021, online

Contact: Dr. Sarah Porter, portersg@longwood.edu

Select students participating in the Virginia Local Section's Local Chemistry Olympiad Competition will be nominated to advance to participate in the National Chemistry Olympiad Exam. The 20 top-scoring students are chosen to attend a study camp. All students who participate will be recognized with a certificate, and the top scoring students and schools will earn additional recognitions.

Eligibility

- Students must be U.S. citizens or legal, permanent residents of the United States (green card holders) to take the U.S. national examination.
- High school students in who will graduate no earlier than spring of the year that they participate in the competition are eligible.
- Students must be under the 20 years of age on the first of July of the year of the competition.
- Students must be nominated by a teacher using this form: https://forms.gle/dSEJodYVjGHZgqAQ8

The first 10 teachers to register students will receive a Chemistry Olympiad t-shirt and buttons!

www.acs.org/olympiad

From DOE Teacher Direct

Building Leaders for Advancing Science and Technology

BLAST is a free educational program of the Virginia Space Grant Consortium designed to support students who are interested in STEM. This is a 3-day residential, on-campus experience with demonstrations and collaborative activities led by college faculty. **Applications due February 8**.

Project WILD Workshops

The **Project WILD program** is an interdisciplinary conservation and environmental education curriculum and materials that focus on wildlife and conservation for all educators. The Virginia Department of Game and Inland Fisheries provides training for educators in support of the Science SOL as well as essential skills in math and language arts. **Email Suzie Gilley** for more information.

Write for the Journal !

We know you've learned a lot over the past year! JVSE invites pre-service and in-service teachers, school administrators, science education faculty, and informal science educators to submit papers for the Summer 2021 issue of JVSE. The theme is *Strategies to Support Learning the Age of COVID-19* and we'd love for you to share lesson activities, solutions, and research associated with all you've learned over the past year! Submissions due March 1, 2021 and the Summer issue will be published July 1, 2021. Submissions unrelated to the theme are also welcome!!! If you have questions, please reach out to Drs. Amanda Gonczi and Jenn Maeng, journal co-editors at **journal@vast. org.**

Virginia Academy of Science and VJAS Virtual Symposium!

The 2020-21 academic year will no doubt go down as one of the most challenging times for the Commonwealth's science teachers ever. With the constant presence of the COVID-19 pandemic and the uncertainty of teaching science courses in an online format, there have been unprecedented challenges facing teachers all year. The Virginia Academy of Science and Junior Academy of Science have worked together this year to help with this situation by providing members of the Academy as online mentors for middle and high school classrooms to perform research projects. The Academy has placed ~30 members with classes across the Commonwealth to develop and implement projects of direct interest to the middle/high school instructors, and the Junior Academy has encouraged the students in these classes to participate in their annual meeting to be held online this May. Both academies intend to continue this project after the pandemic ends as a way to encourage high school students to earn the Commonwealth's new "STEM and the Environment" seal on their diplomas by engaging in authentic research that is presented in a juried competition setting. Teachers who are interested in becoming involved with this program in the future are encouraged to contact Dr. Michael Wolyniak from the Academy (mwolyniak@hsc.edu) for more information.

2021 Virtual VJAS Virginia Junior Academy of Science
A competition for middle-high school students (grades 7-12) that builds on young research scientists. The competition is open statewide for school and individual membership now and online paper submission has been extended to March 10. Student Virtual Competition will be hosted by Williams and Mary on May15. (www.vjas.org)

Request for VJAS Readers and Judges:
VJAS 2021 Research Symposium ALL VIRTUAL.
We are now recruiting Readers (screening papers for acceptance, virtually/online, March) & Judges for the virtual/online May 15 competition date. Please sign-up here: http://vjas.org/judges.html

Back to School with NOAA/NASA! (FREE Educational Resources)

NOAA SciJinks seeks to inspire and engage middle and high school students in the science of weather and satellite meteorology. Through our articles, games and videos you can find answers to questions about why the season change, why lightning strikes, what causes hurricanes and other curious weather phenomenon.

NASA Space Place inspires and enriches upper-elementary-aged kids' learning of space and Earth science online through fun games, hands-on activities, informative articles and engaging short videos. With material in both English and Spanish and resources for parents and teachers, NASA Space Place has something for everyone.

The GOES-R Series Program works with agency and academic partners to create materials for students, parents, teachers and the general public about meteorology, space science, weather phenomena, the environment, and Earth-observing satellites like the GOES-R Series. These efforts support broader national initiatives to improve science, technology, engineering, and mathematics (STEM) education.

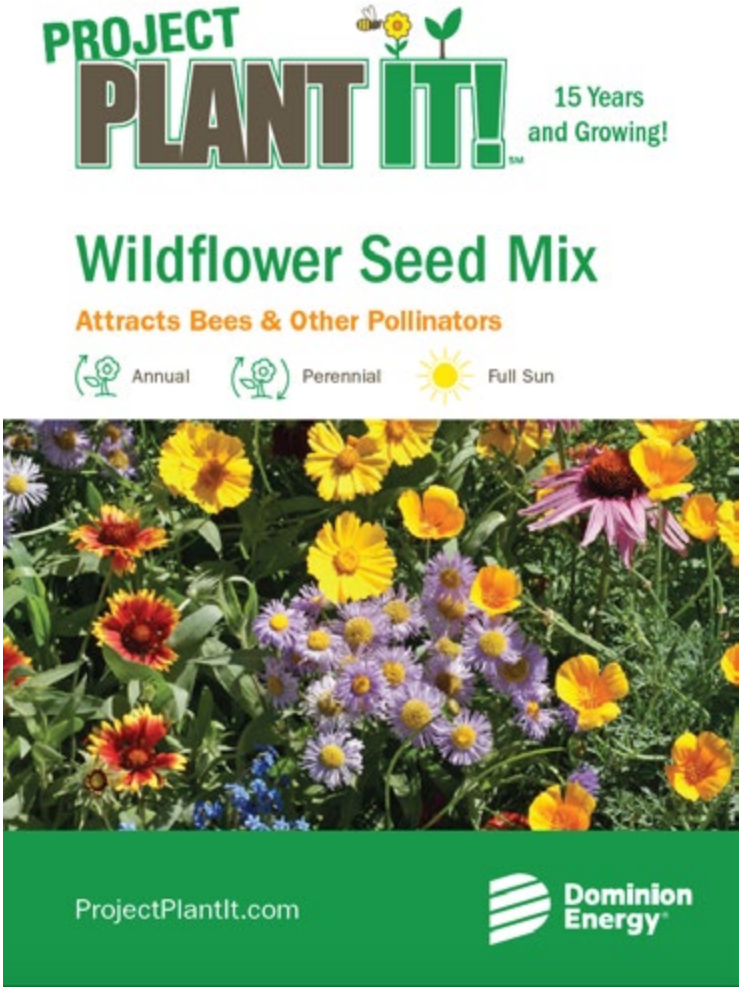
The NOAA Education Portal is your one-stop shop to connect with learning and teaching resources about the ocean and atmosphere. Discover curricula, lesson plans, and real-time data to bring NOAA science into your classroom. Explore opportunities for educators and students of all levels.

Education is a key component toward meeting the **National Weather Service (NWS)** mission of protecting lives and property. Educating individuals of all ages about weather, water, and climate phenomena and how to remain safe from weather hazards provides the initial foundation toward building a Weather-Ready Nation. Need help while kids are at home with you? Check out our lessons, games, and videos to keep them engaged in science.

NASA's new Internet and social media special, **NASA at Home**, will show and engage you in the agency's discoveries, research, and exploration from around the world and across the universe – all from the comfort of your own home. NASA at Home offers something for the whole family.

Dominion Energy's *Project Plant It!* Celebrates 15 Years and Adds Bee Pollinator Program - *Project Plant It!*

Project Plant It!, the environmental education initiative created by Dominion Energy in 2007, is abuzz with a big announcement for 2021. A new bee pollinator program is joining the popular tree-planting program. In addition to the free redbud tree seedling that program participants typically receive in the spring, they also will get a free packet of wildflower seeds specifically designed to attract bees and other pollinators.



"It's so exciting that *Project Plant It!* is still growing as we prepare to celebrate the milestone 15th observance of the program in 2021," said Melanie Rapp Beale, community affairs manager at Dominion Energy and *Project Plant It!* coordinator. "We wanted to commemorate the occasion by creating an educational and fun feature that would complement our tree program and align with *Project Plant It's* mission to teach the next generation how to be good stewards of our environment.

Pollinators, such as bees, butterflies, hummingbirds, moths and bats, play an essential role in supporting our nation's food system and the sustainability of our environment. Bees, in particular, are vital to the pollination of many fruits, nuts and vegetables that Americans enjoy on a daily basis. However, the number of bees is declining due to factors such as pesticides and loss of habitat.

Project Plant It! aims to increase bee populations by having students plant pollinator gardens at their homes, on school grounds, or in their communities. "Also, bees love redbud blossoms, so our tree program and our pollinator program work well together," added Beale.

The Educator Resources page of the *Project Plant It!* website has added a Pollinator Toolbox with a variety of free, hands-on instructional materials for the new pollinator program, including five science-focused lesson plans, a list of books and online resources, a participant certificate, and more. Most of the pollinator materials are available in English and Spanish.

The *Project Plant It!* website still has a toolbox of resources about the many benefits of trees to the ecosystem, including STEM-based lesson plans and interactive games, among other materials. The tree seedlings and the wildflower seed packets will be shipped to participants prior to Arbor Day (April 30, 2021). "National Wildflower Week is May 3-7 and June is National Pollinator Month, so there are lots of opportunities in 2021 to celebrate trees and pollinators by participating in *Project Plant It!*," Beale concluded.

Project Plant It! is available for students of all ages and grade levels. Schools, scout troops, civic and faith-based groups, environment clubs and other entities that work with youth are eligible to request redbud tree seedlings and wildflower seed packets online each fall while supplies last at projectplantit.com.

Fast Facts about Project Plant It!

- Arbor Day 2021 will mark the 15th time that thousands of students in communities served by Dominion Energy will plant redbud seedlings that they received from *Project Plant It!* Spring 2021 will be the first time that students will receive wildflower seed packets to plant a pollinator garden.
- The tree seedlings and the wildflower packets are shipped to participants in April by the Arbor Day Foundation, a longtime partner with Dominion Energy.
- *Project Plant It!* is offered only in areas where Dominion Energy operates. Within three weeks of opening the enrollment for the 2020 - 2021 program, all of the available tree seedlings and wildflower seed packets were claimed. Educators can join the Project Plant It! family all year long by downloading the free resources about trees and pollinators from the website.
- From 2007-2021, approximately 680,000 tree seedlings have been distributed by Dominion Energy and *Project Plant It!*
- In spring 2021, the first year of the new pollinator program, more than 50,000 wildflower seed packets were distributed to participants.
- For more information, visit projectplantit.com.

Special Recognition

Thank You Stafford County

VAST would like to recognize the Stafford County Public Schools Division for the largest number of new members attending the 2020 Professional Development Institute. With over eighty teachers in attendance, Stafford County represented the largest single division in a single region and the overall Commonwealth. SCPS teachers were among the most active science professionals learning from both live and pre-recorded sessions, visiting vendor resources, and contributing to the multitudes of conversation strands, online breakout meetings, and other networking opportunities provided by the Whova app used during the conference. VAST appreciates Region III Stafford County Public School's dedication to science professional learning.

The Dark Sky Wheel, showing the constellation Orion at six different limiting magnitudes (right), and a photo of Orion (left). What is the limiting magnitude of the photo? For most observing locations, the Orion side works best on evenings from January-March, and the Scorpius side from June-August.

Check Your Sky's Quality with Orion!

David Prosper

Have you ever wondered how many stars you can see at night? From a perfect dark sky location, free from any light pollution, a person with excellent vision may observe a few thousand stars in the sky at one time! Sadly, most people don't enjoy pristine dark skies – and knowing your sky's brightness will help you navigate the night sky.

The brightness of planets and stars is measured in terms of apparent magnitude, or how bright they appear from Earth. Most visible stars range in brightness from 1st to 6th magnitude, with the lower number being brighter. A star at magnitude 1 appears 100 times brighter than a star at magnitude 6. A few stars and planets shine even brighter than first magnitude, like brilliant Sirius at -1.46 magnitude, or Venus, which can shine brighter than -4 magnitude! Very bright planets and stars can still be seen from bright cities with lots of light pollution. Given perfect skies, an observer may be able to see stars as dim as 6.5 magnitude, but such fantastic conditions are very rare; in much of the world, human-made light pollution drastically limits what people can see at night.

Your sky's limiting magnitude is, simply enough, the measure of the dimmest stars you can see when looking straight up. So, if the dimmest star you can see from your backyard is magnitude 5, then your limiting magnitude is 5. Easy, right? But why would you want to know your limiting magnitude? It can help you plan your observing! For example, if you have a bright sky and your limiting magnitude is at 3, watching a meteor shower or looking for dimmer stars and objects may be a wasted effort. But if your sky is dark and the limit is 5, you should be able to see meteors and the Milky Way. Knowing this figure can help you measure light pollution in your area and determine if it's getting better or worse over time. And regardless of location, be it backyard, balcony, or dark sky park, light pollution is a concern to all stargazers!

How do you figure out the limiting magnitude in your area? While you can use smartphone apps or dedicated devices like a Sky Quality Meter, you can also use your own eyes and charts of bright constellations! The Night Sky Network offers a free printable Dark Sky Wheel, featuring the stars of Orion on one side and Scorpius on the other, here: bit.ly/darkskywheel. Each wheel contains six "wedges" showing the stars of the constellation, limited from 1-6 magnitude. Find the wedge containing the faintest stars you can see from your area; you now know your limiting magnitude! For maximum accuracy, use the wheel when the constellation is high in the sky well after sunset. Compare the difference when the Moon is at full phase, versus new. Before you start, let your eyes adjust for twenty minutes to ensure your night vision is at its best. A red light can help preserve your night vision while comparing stars in the printout.

Did you have fun? Contribute to science with monthly observing programs from *Globe at Night's* website (globeatnight.org), and check out the latest NASA's science on the stars you can and can't see, at nasa.gov.

This article is distributed by NASA Night Sky Network.
Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!
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!

Digital Demos

from the Science Museum of Virginia

Groups can explore the world with a live, virtual Digital Demo! From dissections to engineering challenges, there is something for curious minds of all ages!

Visit **smv.org/groups** to learn more.

Special thanks to our premier partner: Bon Secours

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Is Your Address Changing?

Be sure to let VAST know your new contact information. Neither the post office nor the internet will forward our newsletters. Please log in to VAST.org to edit your account or e-mail Barbara Adcock, Membership chair: Membership@vast.org .

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, March 1, 2021,
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

The Virginia Association of Science Teachers (VAST) is incorporated in Virginia as a charitable, scientific, and educational organization. VAST is an IRS 501 (c) 3 qualified organization, and is registered with the Virginia Department of Consumer Affairs.