ROOTED IN SCIENCE

CANAAN VALLEY RESORT - DAVIS, WV

2025 ANNUAL CONFERENCE

NASA West Virginia
Space Grant Consortium
WVSPACEGRANT.ORG

West Virginia University, 341 Mineral Resources Building
Morgantown, WV 26506
(304) 293-3927

K-12 Educators & Outreach
- STEM Activities
- Games, Articles, Videos, & More!

College Students
- Undergraduate Research Scholarships
- Ambassador Program
- Graduate Research Fellowships
- Summer Internships

Higher Education Faculty Research Grants
- Research Initiation Grants

CONSORTIUM AFFILIATES

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Bethany College
Bluefield State University
Clay Center for the Arts and Sciences of WV
Community and Technical College System of WV
Fairmont State University
Glenville State University
Green Bank Observatory
Marshall University
NASA Katherine Johnson IV&V Facility
Polyhedron Learning Media, Inc.
Shepherd University
West Liberty University
WV High Technology Foundation
West Virginia State University
WVU Institute of Technology
West Virginia Wesleyan College
Wheeling University

For more information please visit our website:
WVSPACEGRANT.ORG
or
Email: Candy.Cordwell@mail.wvu.edu

Dedicated to building research infrastructure and the promotion of science, technology, engineering, and math (STEM) education in West Virginia

Thank you NASA WVSGC for funding the printing and binding of the conference program and K-12 Professional and Curriculum Development Programs which provided registrations for 4 teachers from the Elementary Earth & Space Science Engineering Program.

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www.wvspacegrant.org

Be sure to like, follow and add us!

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President's Message

Welcome to the 2025 WVSTA Conference!

From the WVSTA President,

Welcome to the West Virginia Science Teachers' Association (WVSTA) conference! I am so pleased you chose to take the time to join us this year. I know it can be hard to leave the classroom for a day or two, but I am confident that your time here will be well worth it.

Our theme this year will resonate with all of you, who, just by being here, are demonstrating your passion and commitment to science education. *Rooted in Science* celebrates our dedication to sharing the wonder of discovery with our students. Science educators come from a wide variety of science backgrounds: some began in a scientific setting and found their way to education, others pursued a degree in science education specifically, others received little to no training in science education, but are driven by their passion for science to deliver high-quality science education to their students. No matter your origin story, all of us share common roots: passion for sharing the understanding and doing of science.

I would like to thank this year's conference chair, Josh Revels, and all the volunteers that made this year's conference possible: the conference planning committee who created the theme, found ideas for field trips, and provide support during the conference, as well as the members of the executive board who have worked out the details - decorations, vendors, speakers, meals, etc. - to make sure this conference is a success. WVSTA is a volunteer-run organization. Please consider how you can help WVSTA continue to thrive.

If you arrive Thursday evening, be sure to swing by the vendor hall during the vendor's reception; enjoy light snacks, talk to vendors, and receive WVSTA Bucks to spend at the auction later in the evening! Starting Friday morning, we have a full schedule of engaging concurrent sessions, hosted by your colleagues from across the state. Choose your own delightful mix of topics to enhance your professional practice. We join together as a whole group on Friday for the Opening Session and our Banquet, and again on Friday for our Business Meeting (don't miss the door prizes!). Stretch your legs by joining a field trip (if you didn't register for one, but want to go, check with our registration table to see if there are open spaces). You're sure to stay busy!

Above all, enjoy your time here with colleagues both old and new. Just as trees support each other through working with fungi found below the forest floor, we support each other by sharing from our varied experiences and areas of expertise.

Together in science and lifelong learning,
Davita Melander
2023-25 President, WVSTA

"Equipped with his five senses, man explores the universe around him and calls the adventure Science." - Edwin Powell Hubble

Conference at a Glance

Thursday, October 23rd

Time	Room	Event
3:30pm – 8:30pm	Lobby	Registration
5:00pm – 9:00pm	Spruce	Preconference Workshop
6:00pm – 9:00pm	Aspen + Lobby	Exhibits Open
6:00pm – 9:00pm	Laurel Lounge	Exhibitors' Reception
8:45pm – 10:00pm	Balsam/Maple	Auction ☺

Friday, October 24th

Time	Room	Event
6:30am – 8:00am	Hickory	Breakfast
7:30am – 5:00pm	Lobby	Registration
8:00am – 5:00pm	Aspen + Lobby	Exhibits Open
8:00am – 10:15am		Concurrent Sessions
10:30am – 12:00pm	Spruce/Balsam/Maple	Opening Session
12:00pm – 12:45pm	Spruce/Balsam/Maple	Forums
1:15pm – 5:30pm	Meet in Lobby	Tours
12:00pm-1:30pm	Hickory	Lunch
1:30pm – 5:00pm		Concurrent Sessions
2:30pm - 2:45pm	Laurel Lounge	Break
6:30pm – 8:30pm	Spruce/Balsam/Maple	Grand Banquet
8:30pm – 10:30pm	Spruce/Balsam/Maple	Dessert Reception

Saturday, October 25th

Time	Room	Event
6:30am – 8:00am	Hickory	Breakfast
8:00am – 10:00am	Lobby	Registration
8:00am – 12:00 noon	Meet in Lobby	Tours
8:30am – 12:00 noon		Concurrent Sessions
8:30am – 11:45am	Aspen	Exhibits Open
12:00 noon – 1:30pm	Spruce/Balsam/Maple	President's Luncheon & WVSTA Business Meeting
1:30pm – 2:30pm	Laurel Lounge	WVSTA Board Meeting

Welcome to Canaan Valley Resort and Conference Center in Davis, WV!

Keynote Speakers

Opening Session - Friday, October 24, 11:00am

Trained as a microbiologist and molecular biologist at Virginia Tech and NC State, for 23 years Dr. Bill Gillette was a Principal Scientist and the Deputy Director of the Protein Expression Laboratory at the Frederick National Laboratory for Cancer Research. At FNL, he directed the expression and purification of recombinant proteins that supported multiple efforts in the areas of cancer research and drug development at National Cancer Institute.

Additionally, Dr Gillette's group played a lead role in producing antigens used by USAMRIID in developing Ebola detection assays used in the field and provided reagents used by the NIH Serosurvey that helped understand the prevalence of SARS-CoV2 exposure in the early days of the pandemic. Dr. Gillette is now with QIAGEN, a biotechnology company that provides essential reagents used in most biological labs worldwide. He is helping to establish another recombinant protein laboratory that will focus on improving the proteins that are used in two widespread technologies that have fundamentally changed biological and medical science: DNA sequencing and PCR amplification.

Keynote Speakers (cont.)

Grand Banquet - Friday, October 24, 6:30pm-8:30pm

Dr. Chris Dardick has served as a Molecular Biologist with the USDA Agricultural Research Service in Kearneysville, WV for the past 20 years and is currently Lead Scientist for the Genetic Improvement of Fruit Crops research unit. He has published over 100 peer-reviewed manuscripts with more than 8,000 citations, holds 8 patents, has been awarded over $10 million in competitive grants, and he is listed among Stanford University's World's Top 2% of Scientists Ranking. Chris has a passion for educating and training the next generation of scientists, hosting numerous high school, undergraduate, graduate, and postdoctoral scholars in his lab as well as serving as a mentor for dozens of young students and scientists.

Chris received his PhD from the University of Maryland, College Park in Molecular and Cell Biology. Dr. Dardick's program encompasses both conventional breeding and biotechnology strategies to develop new varieties of peaches, plums, apples, and other tree fruits with enhanced traits such as compact tree shapes for high-density production, improved flavors to appeal to a wider array of consumers, pitless cherries and plums for consumer convenience, and orchard resilience. He pioneered the use of biotechnology to accelerate the breeding process as well as redesigning trees for year-round fruit production within indoor farms or spaceflight. His work with NASA is on display at Walt Disney Epcot's 'Living With the Land' exhibit where Chris manages their biotechnology laboratory and helps to educate Disney guests about biotechnology. In addition, he works closely with the WV National Guard, creating orchards on post-use mine land. His goals are to develop more sustainable fruit production systems that require less land and chemical inputs, promote healthy diets, and improve consumer access to affordable, nutritious, and high-quality fresh foods.

General Information

Registration

The registration area will be located in the Lobby and will be open during the following times:

- **Thursday, October 23rd 3:30pm – 9:30pm**
- **Friday, October 24th 7:30am – 5:00pm**
- **Saturday, October 25th 8:00am – 10:00am**

Conference Meals and Breaks

All meals and breaks are included in your registration (provided you selected them during pre-registration) and are available at the following times (with your ticket):

Thursday, October 23rd

Exhibitors' Reception 6:00pm– 9:00pm Laurel Lounge

(Sponsored by All of Our Exhibitors)

Friday, October 24th

- Breakfast 6:30am– 8:00am Hickory Dining Rm
- AM Break 10:15am Laurel Lounge
- Lunch 12:00pm– 1:30pm Hickory Dining Rm
- PM Break 2:30pm- 2:40pm Laurel Lounge
- Grand Banquet 6:30pm– 8:30pm Spruce/Balsam/Maple
- Dessert Reception 8:30pm– 10:30pm Spruce/Balsam/Maple

Saturday, October 25th

- Breakfast 6:30am– 8:00am Hickory Dining Rm
- President's Luncheon 12:00pm– 1:30pm Maple/Balsam/Spruce

Exhibits

Stop by and visit the exciting booths, get free resources for your classroom, see the newest products, services, and opportunities for science educators located in the **Aspen Room.** The exhibit hall is open during the following times:

- **Thursday, October 23rd _____6:00pm – 9:00pm**
- **Friday, October 24th _____8:00am – 5:00pm**
- **Saturday, October 25th _____8:30am – 11:45am**

WVSTA Meetings and Events

Remember, this is YOUR organization. Get involved and engaged by attending WVSTA formal and informal meetings held during the conference at the following times:

Friday, October 24th

- Opening Session_____10:30am–12:00pm_____Spruce/Balsam/Maple
- Forums_____12:00pm– 12:45pm_____See Forums Page
  Join like-minded people at a roundtable session and then go to lunch together.

Saturday, October 25th

- WVSTA Business Meeting_____12:00pm–1:30pm____Spruce/Balsam/Maple
- Executive Board Meeting_____1:30pm–2:30pm_____Laurel Lounge

Pre-Conference Workshop

Registration is required. Please see the registration desk if you are interested!

Thursday, October 23, 5:00 p.m.- 9:00 p.m

Ann Brokaw has more than 30 years of experience in the biology classroom teaching at Rocky River High School, a suburban, public high school outside Cleveland, Ohio, where she teaches Advanced Placement Biology, College Credit Plus Biology, and sophomore-level biology. She's passionate about biology and science education, and continually seeks ways to improve her classroom practice as well as her content knowledge.

Equip students with essential skills to interpret and analyze scientific data with free classroom-ready resources from HHMI BioInteractive. Connecting many of the science practices, participants will actively engage as life science learners during this pre-conference session to explore a scaffolded set of activities that build students' data literacy, including data analysis skills, graph interpretation, and the development of evidence-based explanations. In addition, participants will engage as practitioners to reflect on and discuss how to incorporate and adapt the resources and strategies modeled in the session to their own classroom.

HHMI BioInteractive not only is a leading provider of free classroom resources and professional development for high school and undergraduate biology educators, but also brings the power of real science stories into tens of thousands of life science classrooms. We aim to connect students to big ideas in biology and promote engagement through the science practices to transform science education into a creative, interdisciplinary endeavor that reflects the excitement of real research.

BioInteractive is part of the Howard Hughes Medical Institute (HHMI), a biomedical research organization and philanthropy that supports a vibrant community of researchers, educators, students, and professionals. Together, we're unlocking the fundamentals of biology and building an open, inclusive future for science.

hhmi BioInteractive

Special Events

28th Annual WVSTA Auction

Thursday, October 23rd_____8:45pm– 10:00pm Baslam/Maple

Surplus your extra supplies by donating them to a good cause . . . other teachers! Do you have stuff in your stock room that has not been touched in years? Just hate to throw it away because you know somebody somewhere can use it? Bring it and the rest of your surplus supplies to the WVSTA Auction! MONEY IS NO OBJECT (and it isn't real either)!!! WVSTA Bucks are provided with your Registration, and are awarded by Visiting Exhibitors, or Donating Equipment. Auctioneer **Jim Cozort** wants to remind you, "The more you bring, the more you can get!!!"

Stargazing

Thursday, October 23rd_____9:30pm– 11:00pm Meet in Lobby

Engage in updates of the WVSTA Dark Skies initiative led by Robert Strong (SMART Center) and John Tudek (WVGES) while observing with telescopes. Get directions to the viewing site from a WVSTA Board Member or meet in the Lobby. Dress for the weather and enjoy the nighttime sky! This is a FREE event open to all.

Photo Booth

- **Thursday October 23- Saturday October 25 Foyer**

Find the photo booth and take a science selfie, or a group photo with your favorite science friends! Post your photo, and any others you take at the conference, to social media along with #wvsta24/7 as a hashtag. Let's show WV and the world our amazing science teachers!

Door Prize Winners Circle

- **Saturday, October 25th_____12:00pm Spruce/Baslam/Maple**

Items donated by vendors are displayed at the registration booth throughout the conference. You receive several slips in your registration packet that can be used to "bid" on these items. Winners will be announced at the President's Luncheon and you **MUST** be present to win!

Vendor Bingo Cards

- **Saturday, October 26th_____12:00pm Spruce/Baslam/Maple**

Collect all stickers from all vendors by visiting them Friday- Saturday noon in the exhibit hall. You keep the contact information, bring your completed bingo sheet to the registration desk, we'll cut off the bottom and put your name in the drawing. The winner gets a free registration to next year's conference!!

Conference Tours

Pre-registration, prepaid tickets required for all field trips. Didn't pre-register? Check for availability at the registration desk. **All tours meet in the Lobby. Please arrive 15 minutes before departure time.**

Dr. Bob Behling Memorial Geology Field Trip

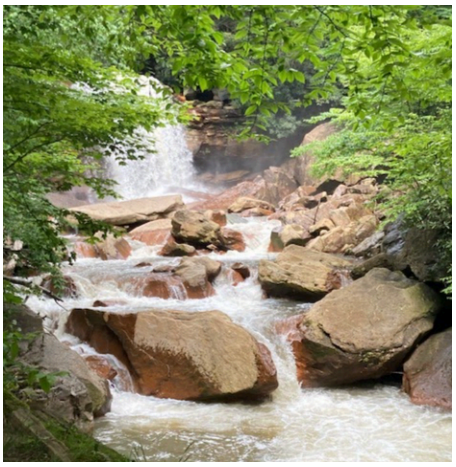
Friday, October 24, 2025 1:00pm-5:00pm

It's a great day for a field trip! Spend the afternoon with geologists Dr. Elizabeth Rhenberg & John Tudek with the West Virginia Geological Survey, learning about the geology around Central WV. Visit outcrops where you will have a hands-on opportunity to explore and understand the geology of West Virginia. Please note: Guests are required to wear close-toed shoes, carry water, and bring rain gear.

Brewing Up Science at Honey River Mead

Saturday, October 25, 2025 9:30am-12:00pm

Visit Healthberry Farm, located in the heart of the Highlands of West Virginia and surrounded by the Monongahela National Forest, to learn about the eco-friendly, small-scale production of Honey River Meads and Honey. A great location due to the foraging of bees in a wild setting far from sources of toxic contamination. Their offerings are raw and come straight from the hive without pasteurization or processing. The meads are aged for two years so they can be bottled without sulfites. Salves and candles are made with simple ingredients that are good for the body and air.



Bicycle Tour of Douglas Falls

Saturday, October 25, 2025 8:00am-12:15pm

Join outdoor enthusiast, Dr. Todd, for a scenic, 12.5 mile, downhill, tour of the Blackwater Canyon from Thomas to Parsons, West Virginia along the Blackwater Canyon. The original railroad grade was constructed 127 years ago by Henry Gassaway Davis and his company, the WV Central and Pittsburgh Railway, an incredible feat for their time. We will stop at coke ovens, Douglas Falls, and enjoy miles of vistas of both the Blackwater and Red Run canyons. The trip will begin in Thomas at Tip Top coffee, for those who need a caffeine boost, and end at the trailhead in Hendricks. (We will return to Canaan Resort for the Presidential Lunch). The trail is easy, and downhill, but it is gravel, and does have occasional larger rocks and potholes and you may bring your own mountain or gravel bike, or rent one from Blackwater Bikes in Davis ($50). Todd will help with bike transport from the Resort or Blackwater bikes to Thomas, and back again from Hendricks, will carry a cooler with drinks, and is a pro at fixing flats, and first aid. We will need to carpool and coordinate the shuttle.

Post-Conference Workshop

Saturday, October 26, 1:30 p.m.- 3:30 p.m

Chasing waterfalls takes on a whole new meaning in West Virginia with the nation's first-ever statewide Waterfall Trail. Get your passport at https://wvtourism.com/west-virginia-waterfall-trail/ and join Waterfall Wanderers, **Deb Hemler** and **Josh Revels,** in a tour of Elakala Falls, Blackwater Falls, and the Falls of Pendleton.

Sign up at the registration table before the Presidential Luncheon to be included in the convoy. Parking is available at the Blackwater Lodge. Although there is minimal hiking to get to the falls, wear comfortable shoes and bring water.

WATERFALL WANDERER
WEST VIRGINIA

WVSTA Leadership

West Virginia Science Teachers Association: 2025 Executive Board

President_____Davita Melander

President-Elect_____Angela McKeen

Immediate Past President_____Josh Revels

Membership Vice President _____Megan Bennett

Treasurer_____ Wayne Yonkelowitz

Secretary_____ Samantha Haught

Executive Director_____Deb Hemler

Electronic Services_____Todd Ensign

WVDE Liaison_____Rachel Eades

Webmaster/Social Media Director_____Angela McKeen

Elementary School Representative_____Tiffany Pace

Middle School Representative_____Alicen Adkins

High School Representative_____Dayna Juraschek

Past Presidents:

2020-2023 Josh Revels	2006-2008 “Jo” Hendricks	1993-1995 Jerry DeLuca
2018-2020 Erika Klose	2004-2006 “Page” Stevenson	1992-1993 George Gruber
2016-2018 Carolyn Thomas	2003-2004 Eric Pyle	1991-1992 Patricia Obenauf
2014-2016 Elizabeth Strong	2001-2003 Jody Cunningham	1988-1990 Sylvia Cooper
2012-2014 Linda Fonner	1999-2001 Larry Oyster	1987-1988 Robert Phipps
2009-2012 Deb Hemler	1997-1999 Diane Furman	1985-1987 Rayman Richardson
2008-2009 Ed Evans	1995-1997 Joe Evans	1984-1985 Larry Wilkinson

Conference Committee Members

Conference Chair_____Josh Revels
Program Coordinators_____Josh Revels & Rachel Eades
Registration Coordinators_____Deb Hemler, Josh Revels, and Amelia Reaser
Speaker Coordinators_____Dayna Juraschek
Exhibitor Coordinator_____Megan Bennett
Tour Coordinators_____Todd Ensign and Deb Hemler
Merchandise Coordinators_____Wayne Yonkelowitz & Todd Ensign
Auction Coordinators_____Jim and Patty Cozort
Hospitality Coordinators_____Teresa Barton & Robin Sizemore
AV Coordinator_____ Todd Ensign
Additional Committee Members___Peggy Moore, Alicen Adkins, and Bonnie Crites

WVSTA Guiding Principles

WVSTA Mission
The mission of the WVSTA is to promote scientific growth through professional development and networking in the science community.

Purpose
The purpose of the WVSTA is to encourage interest and active participation in science and science education at all levels, to provide a medium for the exchange of views regarding the teaching of science, and to promote the cooperative study of problems and challenges to the teaching of science.

Goals
1. Facilitate and cooperate in providing for national, regional, state and local conferences on science education.
2. Prepare and distribute articles, reports, and classroom materials which are appropriate and helpful to teachers of science.
3. Disseminate information which promotes science and science education universally throughout the state at all levels, i.e. school, community, business and industry, and government.
4. Encourage investigations, experimentation and research in science, and science education.
5. Cooperate with the National Science Teachers Association in formulating plans and projects which advance the quality of science teaching and which promote a more widespread acceptance of science as a subject worthy of serious study from elementary school through college.

Opening Session

Friday, October 24th, 10:30am –12:00pm
Spruce/Balsam/Maple Ballroom

Opening — Davita Melander
WVSTA President

Welcome — Dr. Deb Hemler
WVSTA Executive Director

Invited Announcements

State of Science Education in West Virginia — Rachel Eades, Keisha Thompson
State Science Coordinators

Presidential Award for Excellence in Math and Science Teaching — Dr. Deb Hemler
WV PAEMST Coordinator

Science Fair Resources — Dr. Ed Michael
Professor Emeritus, WVU

Keynote Speaker — Dr. Bill Gillette
Frederick National Laboratory for Cancer Research

Conference Announcements — Josh Revels
WVSTA Conference Chair

Grand Banquet

Friday, October 24th, 6:30 pm (doors open 6:15)
Spruce/Balsam/Maple Ballroom

Introductions_____Davita Melander
WVSTA President

Invocation_____Dr. Pat Obenauf ☺

Dinner_____Buffet

Presentation of Awards_____*see next pages*

Introduction of Keynote Speaker_____Davita Melander
WVSTA President

Keynote Speaker _____Dr. Chris Dardick
Appalachian Fruit Research Laboratory, USDA

Special Recognition Awards

2025 Awards Ceremony

2025 Presidential Award for Excellence in Math and Science Teaching

Presenter:..... Deb Hemler
WV PAEMST Coordinator

Secondary Science State Finalists.....**Megan Bennett**
Paw Paw High School

Dayna Juraschek
Jefferson High School

Margie Suder
Marion County Schools

2024 Presidential Award for Excellence in Math and Science Teaching

Presenter:..... Deb Hemler
WV PAEMST Coordinator

Elementary Science State Finalists.....**Faith Harper**
Little Birch Elementary

Megan Lynch
Union Elementary

Heather Puglisi
Warwood Elementary

Special Recognition Awards (cont.)

2025 WV Outstanding Biology Teacher Award

Presenter: Teresa Barton
2009/2016 WV OBT

WV OBT Awardee Richard McKown
Huntington High

Please nominate a teacher: https://nabt.org/Awards-NABT-Award-Nomination-Form

2025 WV Outstanding Earth Science Teacher Award

Presenter: Deb Hemler
NAGT ES

WV OEST Awardee **No Applicants**

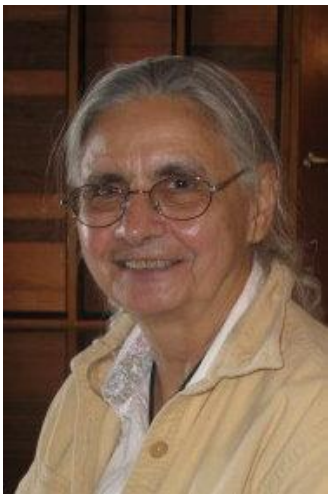
Please nominate a teacher: https://nagt.org/nagt/awards/oest_nomination_eastern.html

2025 Patricia Obenauf Scholarship

Presenter: **Deb Hemler**
WVSTA Executive Dir.

Scholarship Recipient **Joyce Bryant**
Holden Central Elementary

This award honors the 33-year commitment of Dr. Patricia "Pat" Obenauf, a founding member, to WVSTA.
Please nominate a teacher: https://forms.gle/PhbyExETaFKtrYzL8



Dr. Patricia Obenauf (1932-2017)
I honor the place in you in which the universe dwells.

Recent PAEMST* Science Award Winners

Elementary		Secondary	
2024	TBA	2023	Alicen Adkins
		2021	Renee Haines
2020	Tiffany Pace	2019	Angela McKeen
2018	Jamie Pettit	2017	Erika Klose
2016	Margaret Howells	2015	Maureen Miller
2014	Nancy Holdsworth	2013	Eric Kincaid
			Pete Karpyk
2012	Barbara "Tootie" Black	2011	Angela McDaniel
	Gabrielle Rhodes		
2010	Michele Adams	2009	Rebecca Jones
2006	MaryLu Hutchins	2007	Mickie Richardson
2004	Kathryn Edwards	2003	Alicia Spears
2002	Barbara Haines	2002	Wayne Yonkelowitz
2001	Rebecca Kittle	2001	Linda Robinson
2000	Philip Guseman	2000	Cynthia Keeling
1999	Linda Fonner	1999	Sonya Picklesimer
1998	Annette DeLuca	1998	Cindy Willis
1997	James Giles	1997	Mary Sue Burns
1996	Bonnie Mae Mueller	1996	Kathryn Ann Conway
1995	Carol Lou Mathis	1995	Kathryn Burns Jacquez

***Presidential Award for Excellence in Math and Science Teaching**

WVSTA Distinguished Fellow

At the 2002 WVSTA conference in Charleston, WVSTA began recognizing outstanding leaders in our organization. In 2004, the Executive Committee bestowed on these winners the title of "WVSTA Fellows" and drafted the following guidelines for future winners:

Nominees must meet a minimum of four (4) of these seven criteria, and a minimum of two of the starred criteria:

1. Past officer of WVSTA *
2. Help plan/execute a WVSTA conference *
3. Leadership in statewide educational activities or grants *
4. Presenter at several WVSTA conferences
5. Significant contributions to the enhancement of science education
6. Recipient of other significant recognition (e.g. Presidential Award, Milken Award)
7. Served on state committees (such as WESTEST construction, or state curriculum development/revision, or state textbook adoptions)

Past Winners

2023	Mr. Robert Strong	2022	Dr. Todd Ensign
		2020	Ms. Robin Sizemore
2017	Mr. Kip Bisignano	2018	Ms. Libby Strong
2015	Ms. Linda Fonner	2016	Mr. Wayne Yonkelowitz
2013	Ms. Jody Cunningham	2014	Dr. Deb Hemler
	Ms. Jo Hendricks		
2011	Mr. Patrick Balch	2010	Mr. Bob Seymour
2009	Ms. Cindy Willis	2008	Ms. Sheila "Page" Stevenson
2007	Dr. Rayman Richardson	2006	Mr. Larry Oyster
2005	Mr. David Goodwin	2004	Mr. Jerry DeLuca
2003	Ms. Diane Furman	2002	Ms. Phyllis Barnhart
	Dr. Edward Keller, Jr.		Dr. Robert Behling
	Dr. Thomas Repine		Dr. H. Andrew Cook
	Ms. Brenda West		Dr. Joe Evans
			Dr. Jim Meads
			Dr. Patricia Obenauf

Please contact your officers for future nominations for WVSTA Fellow.

President's Luncheon & Business Meeting

Saturday, October 25th, 12:00pm- 1:30pm
Spruce/Balsam/Maple Ballroom

Presider_____Davita Melander
WVSTA President

Welcome

Introduction of Officers

Recognition of Conference Committee & Contributors

Lunch

WVSTA Business Meeting_____Davita Melander
WVSTA President

New Business
Art Contest Winner

Passing of the Gavel

Door Prizes

Friday October 24th, 8:00am-9:00am

Seeing is Believing, or is It? The Science of Color and Light for Elementary Teachers — Maple

Keisha Thompson, *WVDE, Charleston, WV, krunion@k12.wv.us*

This session will allow the participant to learn about the science behind how humans see what they see and how light can affect what they see. Participants will have hands-on experiences with light and paint to examine color and how we see the world around us.

AI Literacy for All: Student-Led Learning with AI Ready Skills — Balsam

Catrina Hunzeker, *Prodigy Learning, New York, NY, catrina.hunzeker@prodigylearning.com*

In today's world, it is essential for students to understand Artificial Intelligence. AI Ready Skills provides a comprehensive, student-led curriculum and credentialing pathway that educates students on AI through engaging and interactive methods. It is an easy-to-teach solution, empowering educators with a comprehensive, future-focused curriculum that addresses the needs of tomorrow's workforce, today. This session will demonstrate how students build AI Literacy skills in a safe and open digital environment, a Minecraft Education world, where they complete learning activities before undertaking assessments to prove their skills. And it is available to all WV public schools at no cost!

Explosive Learning with Storybook STEM — Spruce

Suzanne McDonald, *West Virginia University, Morgantown, WV, smcdonal@mail.wvu.edu*

Join WVU Extension STEM Specialists for an engaging session where educators will gain access to standards-aligned Storybook STEM lessons for elementary classrooms. Attendees will also participate in hands-on STEM lessons, which include materials and storybooks to use and share in their schools. Since 2021, WVU STEMCARE has partnered with Energy Express, a literacy initiative at WVU, to integrate STEM lessons with storybooks in the Storybook STEM program. WVU Storybook STEM, developed in collaboration with the WVU 4-H STEM Working Group, enhances Energy Express—an award-winning summer reading and nutrition program serving around 3,000 children annually in West Virginia's rural and low-income communities. By pairing hands-on STEM lessons with weekly book selections, WVU Storybook STEM helps combat the "summer slide" and fosters an engaging learning environment that enables students to maintain or improve their reading levels.

Marshmallow Meiosis — Pine

Teresa Barton, *Mercer County Schools (PikeView High), Princeton, WV, tbarton@k12.wv.us*

Join us for an engaging, hands-on session designed to help science teachers bring the complex process of meiosis to life for their students. This interactive workshop will guide participants through a classroom-tested activity that uses simple materials to model each stage of meiosis, emphasizing key concepts such as homologous chromosome pairing, crossing over, and the formation of haploid cells. Attendees will work through the simulation themselves, gain tips for classroom implementation, and receive take-home resources, including student worksheets and instructional guides. Perfect for middle and high school educators, this session will equip you with practical strategies to enhance student understanding of genetic variation and cellular division through active learning.

Friday October 24th, 8:00am-9:00am (continued)

The Stellar Plot Thickens! Birch

Zach Willhoite, *Tyler Consolidated High School, Sistersville, WV, zachary.willhoite@k12.wv.us*

Ever wonder where our stellar neighbors really are? In this hands-on activity, students use basic trig and simple ratios to plot the closest stars to Earth—in three dimensions! By turning raw distance and angle data into x-, y-, and z-coordinates, students build a 3-D "map" of our cosmic neighborhood. The result? A visual model that reveals surprising patterns, clusters, and just how lonely our Sun actually is! This activity combines math, astronomy, and a bit of engineering as students work together to scale and position stars accurately. Perfect for getting students moving, thinking spatially, and seeing astronomy in a whole new dimension.

How To Get a Robotics, Rocketry, or Drone Team "Off the Ground!" Hawthorne

Dr. Todd Ensign, *Fairmont State University, Fairmont, West Virginia, todd.ensign@fairmontstate.edu*

Join Dr. Todd from Fairmont State to learn how your school or club can start a robotics team on any platform, from FIRST LEGO League Explore to VEX V5. We will also cover the Aerial Drone Competition, which is the largest and fastest-growing STEM competition in WV, and how you can leverage simulations and 3D printing to propel your American Rocketry Challenge team. Additionally, we will learn how you can be trained on a wide range of STEM activities for your classroom and how to request a "Loan and Learn" kit for your classroom or out-of-school group.

Bubbling Up! Modeling Volcanic Eruptions with Bubble Wands Elm

Josh Revels, *Fairmont State University, Fairmont, West Virginia, jrevels@fairmontstate.edu*

Using Bubble Wands from Educational Innovations, investigate the factors affecting the explosiveness of volcanic eruptions! Collect data involving moving bubbles to generate distance vs. time graphs for evaluating motion as constant speed or acceleration. Determine how both the composition and temperature of a fluid impact its viscosity and ability to slow the movement of a buoyant gas.

Friday October 24th, 9:15am-10:15am

Unlocking STEAM: Cultivating Mindsets and Skillsets for Authentic Integration Maple

Rachel Eades, *WVDE, Charleston, WV, reades@k12.wv.us*

Dive into the dynamic world of STEAM education as we explore the essential mindsets and skillsets that empower innovative teaching. In this interactive session, you'll engage in a collaborative brainstorming experience designed to inspire genuine, practical strategies for weaving STEAM principles seamlessly into your instruction. Come ready to spark creativity, connect with peers, and transform your approach to STEAM learning!

Are Humans Really Going to Set Foot on the Martian Surface? Balsam

Robert E. Strong, *SMART-Center, Wheeling, West Virginia, robert@smartcenter.org*

The Intended Audience for this presentation is: any Educator (grade 3 - College) with inquisitive students who have asked the question "Are Humans Really Going to Set Foot on the Martian Surface?" Join Robert for a frank and honest reflective look into the pros, cons, and reality of sending humans as active explorers and perhaps long-term/permanent colonists to the surface of Mars, in person rather than by robotic proxy. Is the planet Mars really Earth 2? Is Mars a fixer-upper planet just waiting for us to warm it up? What exactly has been the long-time allure of humans to Mars? Why do people want to go to Mars now? Can we go to Mars? Will we go to Mars? Should humans go to Mars? Come join the conversation, let's find out together. Activities, hand-outs, classroom ideas, and fun discussions.

Fun, Cheap Ideas for Newton's Laws and Energy Transfers Spruce

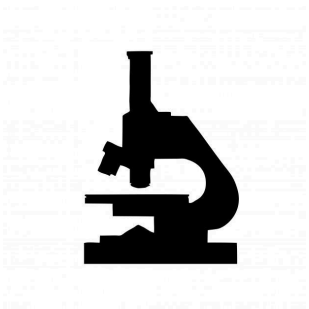
Vincent O'Leary, *Wheeling Middle School, Wheeling, WV, vincent.oleary@k12.wv.us*

Investigate core Physics concepts with your students in exciting new ways. During this hands-on session, you will act out two activities I use to introduce basic ideas in Physics - Newton's Laws and Energy Transfers. Using bathroom scales, we can measure the effect of our force on the acceleration of a pickup truck and see how I get my students outside to do it. Then, using toys and supplies from the dollar store, I'll share examples of interactive energy stations where students can experience energy transfers between kinetic, potential, elastic, thermal, and chemical stores. Leave this presentation with classroom-tested materials that will supercharge your next Physics lab without breaking the bank.

Sensory Consideration in the Science Classroom Pine

Diana Aston, *Magnolia High School, New Martinsville, WV, Leslie.lausten@schoolspecialty.com*

The Sensory Considerations in the Science Classroom session will provide educators with insights and ideas on how to effectively address the needs of special education students in general science classrooms. Research has demonstrated that engaging the senses during lesson activities provides a pathway to deepen understanding, activate the brain, and build connections to previous and new complex science content topics. Participants will experience meaningful involvement and gain useful information for decreasing students' stress and anxiety in the classroom, helping them to connect and find real-world relevance to the content.



Galactic Radio: Mapping Hydrogen's Greatest Hits **Birch**

Zach Willhoite, *Tyler Consolidated High School, Sistersville, WV, zachary.willhoite@k12.wv.us*

In this activity, students use a simple horn radio telescope to detect the 21-cm hydrogen line and map our galaxy's hidden structure. By sweeping across the sky and recording signal strength, they reveal peaks that correspond to spiral arms—and even measure redshifts that show the Milky Way's rotation! Students turn their raw data into a galactic "map," discovering that the band of stars overhead is actually a vast, spinning disk. This activity makes radio astronomy hands-on, letting students do real science with real data while connecting physics concepts like Doppler shift, velocity, and the electromagnetic spectrum. It's an engaging way to bring the invisible universe to life—no million-dollar observatory required.

NASA's Dragonfly Mission to Titan **Hawthorne**

Todd Ensign, *Fairmont State University, Fairmont, WV, tensign@fairmontstate.edu*

Join Fairmont State STEM Educator, Dr. Todd Ensign, on a journey to Saturn's largest moon: Titan. We will learn about the Dragonfly Mission, led by the Johns Hopkins Applied Physics Lab, and how we will look for signs of primordial life. During this session, you will be introduced to a number of hands-on activities designed to introduce middle-school (and up) students to this amazing 8-bladed drone, which is launching in 2026! We are also recruiting teachers for our summer institute in June 2026 at FSU.

A Bright Idea: Charting Reaction Rates for Grades 3-12 **Elm**

Josh Revels, *Fairmont State University, Fairmont,WV, jrevels@fairmontstate.edu*
Amelia Reaser, *Fairmont State University, Fairmont, WV, areaser@students.fairmontstate.edu*

Who doesn't love glowsticks!? Explore how temperature influences the rate of chemiluminescent reactions by investigating the formation of reactive intermediates that transfer energy to fluorescent dyes. Great activity or demonstration for simple concepts, such as teaching how temperature affects molecular motion. Oh! and perfect for a spooktacular Halloween craft or party trick!

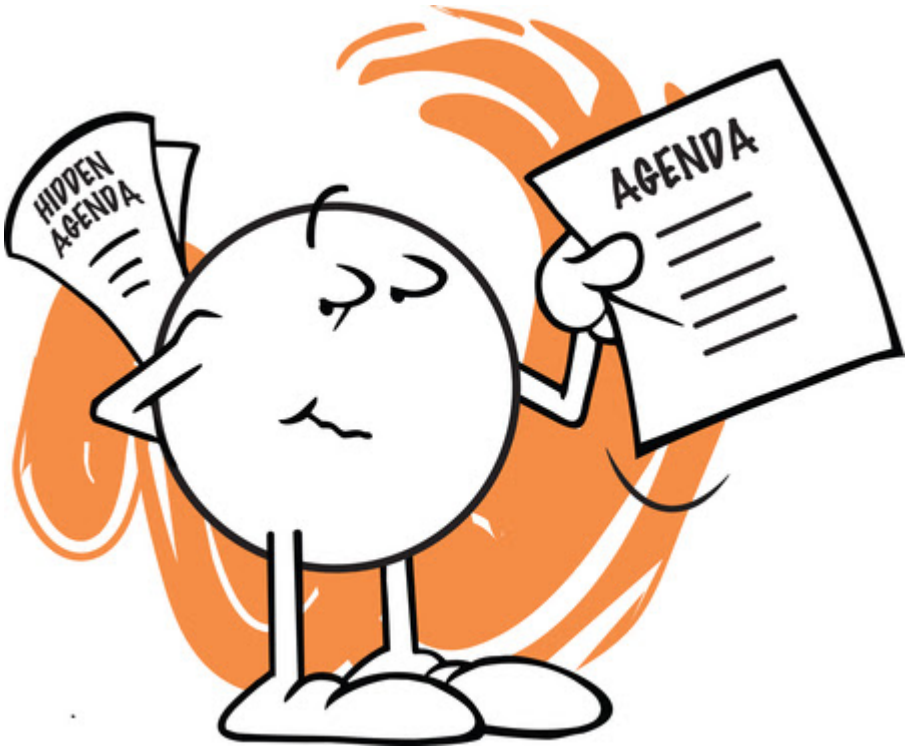
Friday, October 24th, 10:30am-12:00pm

Opening Session **Maple/Balsam/Spruce Ballroom**

Friday, October 24th, 12:00pm-12:30pm Forums!

Just after the opening session and before your lunch at Hickory, join a conversation with like-minded folks. We have many forums to choose from, and if you would like to suggest another, let us know and we'll add it next year! We'll announce the forums and direct you to the right convener and table in the Ballroom to begin your discussion. Afterwards, you can move as a group to lunch if you would like to continue your conversation!

WV Dark Skies	Robert Strong
Climate Science (EGeoS)	Amy Weislogel
2026 Conference Planning	Megan Bennett
Elementary Science	Keisha Thompson
WV Science & Engineering Fair	Rachel Eades
Science Book Studies	Davita Melander



Friday, October 24th, 1:30pm-1:55

From Pages to Possibilities - Enhancing Reading with STEM **Maple**

Heather Puglisi, *Warwood Elementary School, Wheeling, WV, heather.puglisi@k12.wv.us*

From story time to science time, learn about ways to incorporate STEM projects based on books. Some examples of STEM materials that will be featured are 3D printers, circuits, sublimation materials, and Glowforges. After reading books, students use their knowledge to complete STEM projects that reinforce knowledge from non-fiction or fiction main ideas from the stories. Tying together the reading and science curriculum creates a cohesive and memorable learning experience. This session would be appropriate for all elementary ages K-5, as it could be adapted to many different books depending on individual curriculum needs. It would also be presented at a 25-minute lecture session or at the show and share.

Water You Waiting For? Educate and Conserve **Balsam**

Jasper Gue, *WVDEP, Charleston, West Virginia, jasper.m.gue@wv.gov*

"The Ripple Effect: Water-Use Conservation Program" is a hands-on initiative from the WVDEP Watershed Improvement Branch & Project WET designed to promote water conservation and environmental education across West Virginia. Through this program, eligible schools and nonprofit organizations can receive a free 55-gallon rain barrel and diverter kit, professionally installed using repurposed materials. But the program doesn't stop at installation—Project WET-aligned activities and lessons are integrated to engage students and youth in water-use education, sustainability practices, and watershed awareness. This session will introduce participants to the program's goals, eligibility requirements, and educational components. Attendees will gain access to resources for integrating water conservation into their classrooms, learn how to apply for a rain barrel installation, and explore ways to engage their communities in hands-on environmental stewardship. This session is ideal for educators, administrators, and nonprofit leaders interested in place-based, STEM-aligned environmental programming that connects students with real-world conservation practices.

NASA Data Science for High Schools in WV **Spruce**

Christopher Fowler, *West Virginia University, Morgantown, WV, christopher.fowler@mail.wvu.edu*

Dr. Christopher Fowler is a research scientist within the Department of Physics and Astronomy at WVU. As part of a NASA grant, he and his group will be developing a "sandbox" style data science project aimed at engaging high school students in WV in data and computer science. A key focus of the project will have students interact with, analyze, and interpret "real-world" observations made by NASA spacecraft throughout our solar system. All project materials will be digital and hosted by Code.org and will be freely available to high schools across the country. The goal of this presentation is to advertise the goals of the project and to interact with high school teachers who may be interested in utilizing these materials in their classrooms. Project development is just starting, and feedback on the needs and resources available to teachers will be crucial in its development.

Friday, October 24th, 1:30pm-1:55 (Continued)

Unlocking Cyber.org: Free Cybersecurity Curriculum for K–12 Classrooms Pine

Vathani Amarasingham, *West Virginia State University Extension Services, Charleston, WV, vathani.am@wvstateu.edu*

Discover the impact of the FREE Cyber.org curriculum— high-quality resources designed to help K–12 educators integrate cybersecurity concepts into the classroom. From coding and networking fundamentals to real-world problem solving, Cyber.org offers engaging, standards-aligned lessons that build digital literacy and career readiness, and it is free! This session will showcase the curriculum and provide strategies for bringing cybersecurity to life for your students.

Don't Believe Everything You Believe Hawthorne

Jen Mclanahan, *Generation Skeptics, Princeton, West Virginia, jmcclanahan@k12.wv.us*

With the rise of misinformation, a program that teaches students to ask questions and question their own beliefs and opinions is important. Intellectual humility and science inquiry are key. Generation Skeptics has dozens of free lessons. In our “Power of Words” lesson, students learn the importance of multiple trials and double-blind protocols when designing experiments. In “How To Sell Pseudoscience,” students learn to identify the gimmicks used to sell pseudoscientific products. It is our hope that students will learn to spot nonsense when they see it on TV or social media. We also have lessons teaching students to discern between credible and non-credible sources, and many more. We have guest speakers who can Zoom into classrooms and discuss these topics for free. We offer $500 stipends to teacher leaders who are interested are starting GenSkeps clubs at their schools. All our lessons are free. Check out our website at www.generationskeptics.org.

STEMpact WV Science Quests™ Elm

Alicen Adkins, *STEMpact WV, Cabins, WV, info@stempactwv.org*

Ignite curiosity in your students with STEMpact WV Science Quests™—four-lesson units built around engaging storylines and hands-on problem-solving. From helping aliens learn about Earth’s elements in the Chemistry Quest to unraveling mysteries of the cosmos in the Astronomy Quest, each Quest blends imagination with science practice. In this 25-minute session, you’ll get free access to the Astronomy Quest unit and experience sample activities that can be used in classrooms, after-school clubs, or homeschool settings. You’ll also learn how to access upcoming Quests and live virtual training sessions. Walk away with practical resources, fresh ideas, and a ready-to-use Quest that makes science come alive for your students!

Friday, October 24th, 1:30pm-2:30pm

Martian Motion, WVU STEAM TAC **Birch**

Erica Skorlinski, *WVU STEAM TAC, Morgantown, West Virginia, erica.skorlinski@mail.wvu.edu*

Participants will engage in our hands-on "Martian Motion" classroom immersion lesson. This lesson is an interactive, real-world STEAM lesson with an aerospace theme. Participants learn basic electrical concepts that would be present on a Mars rover by manipulating snap circuits. Then, participants will use the engineering design process to build a "Wiggle Bot" rover. This lesson fosters critical thinking, problem-solving, and teamwork as participants work collaboratively (just as students would) to complete tasks.

Friday, October 24th, 2:05pm-2:30pm

From Pages to Possibilities - Enhancing Reading with STEM **Maple**

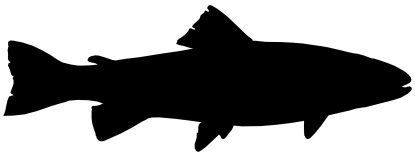
Heather Puglisi, *Warwood Elementary School, Wheeling, WV, heather.puglisi@k12.wv.us*

From story time to science time, learn about ways to incorporate STEM projects based on books. Some examples of STEM materials that will be featured are 3D printers, circuits, sublimation materials, and Glowforges. After reading books, students use their knowledge to complete STEM projects that reinforce knowledge from non-fiction or fiction main ideas from the stories. Tying together the reading and science curriculum creates a cohesive and memorable learning experience. This session would be appropriate for all elementary ages K-5, as it could be adapted to many different books depending on individual curriculum needs. It would also be presented at a 25-minute lecture session or at the show and share.

From Tanks to Streams: Hooking Students on Science with Trout in the Classroom Balsam

Nicole "Nicki" Wolfe, *Ronceverte Elementary School, Ronceverte, West Virginia, nfwolfe@k12.wv.us*

From Tanks to Streams: Hooking Students on Science with Trout in the Classroom is a dynamic initiative where students across the United States raise trout from eggs to fingerlings in their classrooms. Throughout this hands-on process, they gain a deep understanding of aquatic ecosystems, the trout life cycle, and water quality science. This session will detail the program's requirements, including necessary equipment, the work involved, and a typical timeline. We'll also explore various funding options, such as grants and partnerships with conservation organizations like Trout Unlimited. Attendees will learn about the rich, cross-curricular learning experiences students will have and how the program fosters a profound sense of environmental stewardship. Join me to discover how this project transforms classrooms of any level into vibrant centers of scientific exploration.



Building STEM Leaders: The Elementary Teacher Corps **Spruce**

Jeff Remington, *The Penn State Center for Science and the Schools, University Park, PA, jeff_remington@psu.edu*

Ready to lead the future of STEM? This session reveals the details of a groundbreaking $5 million NSF grant that is creating a National STEM Teacher Corps across PA, WV, and NJ. Learn how this "STEM Pioneers" program empowers elementary teachers with a generous stipend and unparalleled support to become leaders in their field. We will highlight how 27 Teacher Corps members will receive advanced professional development, classroom materials, and conference travel. Through their work, they will build a powerful network and train hundreds of other educators, creating a multiplier effect that revolutionizes K-5 STEM learning. Experience some of the hands-on activities that are at the core of this initiative.

Preparing Agents of Change for Tomorrow **Pine**

Janen Ritchea, *West Virginia University, Morgantown, WV, jsr00013@mix.wvu.edu*

Preparing Agents of Change for Tomorrow (PACT): Building Capacity for Climate Resilient Futures in Appalachia is a participatory research and education program developed for high school-aged youth to help move the needle on flood risk and vulnerability in Appalachia. PACT is rooted in the understanding that having hope, which is imbued with a positive feeling for the future, is a necessary first step to building community flood resilience and that hope can be found, facilitated, and nurtured by cultivating knowledge, confidence, self-efficacy, and personal agency to address the flooding challenge in Appalachia. An overview of the PACT program will be provided, and a forthcoming Teach-the-Teachers workshop will be shared with interested educators.

Chemistry Career Day for Advanced Placement Students **Hawthorne**

Douglas Swartz, *West Liberty University, West Liberty, WV, douglas.swartz@westliberty.edu*

Chemistry career day at West Liberty University involved hosting a class of 20 AP Chemistry students from a local high school for a day where the students conducted laboratory experiments, interacted with current chemistry majors from the university, and met with several alumni to discuss different career paths associated with a degree in chemistry. This well-received event provided students with a professional network and the discovery of career paths beyond the laboratory. This presentation will highlight the laboratory experiments, recruitment opportunities, and the pathway for longitudinal success in highlighting experiences in chemistry for up-and-coming high school students.

Friday, October 24th, 2:05pm-2:30pm (continued)

Using FLL-E Robotics in the Elementary Science Classroom **Elm**

Alicen Adkins, *STEMpact WV & Moorefield Robotics, Moorefield, WV, alicen.adkins@k12.wv.us*

Discover how FIRST LEGO League Explore (FLL-E) Robotics can transform your elementary science classroom into a hub of creativity, collaboration, and critical thinking. Led by teachers and students who actively coach more than 40 FLL-E teams across multiple grades, this session will showcase how robotics can be seamlessly integrated into existing science time without requiring extra scheduling. Using the engaging FLL-E platform, students not only explore core STEM concepts but also develop essential life skills such as teamwork, time management, and problem-solving—skills often challenging for young learners to master. With a highly successful track record and enthusiastic support from administrators, teachers, parents, and students, our approach demonstrates how robotics can energize science learning while building confidence and excitement in students. Participants will gain practical strategies, hear real stories from classrooms, and see how robotics can foster a love of science in even the youngest learners.

Friday, October 24th, 2:45 - 3:45pm

Oil & Natural Gas Hands-on Energy Explorations **Maple**

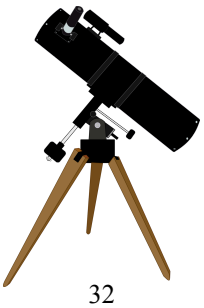
Wayne Yonkelowitz, *National Energy Education Development (NEED) Project, Manassas, VA, info@need.org*

Hands-on activities that visualize for students how core sampling works, the relationship between well depth and recovery efforts, and the importance of perforation in the process of drilling. Participants will leave with creative ideas to engage all learners while teaching about petroleum and natural gas in a fun, interactive way that can be tailored to fit grades 3-12.

Black Holes Made Simple **Balsam**

Robert E. Strong, *SMART-Center, Wheeling, West Virginia, robert@smartcenter.org*

The Intended Audience for this presentation is: any Educator (grade 3rd - College) with inquisitive students who have heard of Black Holes and may be equal parts amazed and terrified by these remarkable objects. Join Robert for a reflective insider's look at the ideas and reality of Black Holes gained from over half a century of his research into one of the most misunderstood celestial objects ever imagined, which turned out to be real. We will address various levels of Black Hole-related questions and misconceptions. If you and your students can make change for a dollar, you can follow the surprising, fascinating, and amazingly simple mathematics of Black Holes. Activities, hand-outs, make-and-takes, and fun.



Teaching Intentionally with Gizmos **Spruce**

Dustin Lackey, *ExploreLearning, 101, Charlottesville, dustin.lackey@explorelearning.com*

Learn strategies for teaching science with Gizmos. We will learn how to use our state's alignment system to implement the perfect Gizmo for your lesson. After this, we will work as a group to solve a real-world problem using a Gizmo! ExploreLearning Gizmos have many resources to help you be successful in teaching your science lesson! Let's find them!

Bridging the Gap: Double Dipping Literacy through Science **Pine**

Leslie Lausten, *FOSS & School Specialty, Fredericksburg, VA, leslie.lausten@schoolspecialty.com*

This session will explore how integrating science and literacy can deepen students' understanding of both disciplines. Educators will discover practical strategies to combine reading, writing, and speaking in ways that enhance scientific comprehension and critical thinking.

Guardians of the Gasline WVU STEAM TAC **Birch**

Samantha Couch, *WVU STEAMTAC, Saulsville, WV, sct0004@mail.wvu.edu*

Participants will engage in our hands-on "Guardians of the Gasline" classroom immersion lesson. This lesson is an interactive STEAM experience with a real-world safety and monitoring theme. Participants will explore coding and data collection by programming micro:bits to operate gas sensors. They will detect levels of alcohol vapor in the air and determine whether the environment is safe by calibrating and interpreting their sensors. This lesson encourages critical thinking, coding skills, and collaboration as participants work through problem-solving challenges (just as students would) to monitor and respond to simulated gas leak scenarios.

Ozobots Across the Curriculum: Elementary to High School **Hawthorne**

Melesa Swartz, *West Liberty University, West Liberty, WV, melesa.swartz@westliberty.edu*

Join us to explore how Ozobots bring learning to life across grade levels and subjects! In this interactive share-a-thon, participants will discover hands-on ways to integrate coding, science, math, and literacy, with a special spotlight on thermal energy. Leave with ready-to-use activities that spark curiosity, creativity, and cross-curricular engagement in every classroom.

Unlocking Science Success: Navigating Middle School Learning Progressions (6-8) **Elm**

Jeanna Goodson, *Carolina Biological Supply Co, Burlington, NC, gina.wofford@carolina.com*

Take a deeper dive into understanding the importance of learning progressions in 3-dimensional learning using Smithsonian's STCMS. Experience the importance of a coherent storyline in student understanding and engage in a learning progression using density. Participants will walk away with valuable resources to take back to the classroom.

Friday, October 24th, 4:00-5:00pm

Understanding Through Inquiry: Enhancing Science Learning via Sensemaking — Pine

Leslie Lausten, *FOSS & School Specialty, Fredericksburg, VA, Leslie.lausten@schoolspecialty.com*

This session explores how inquiry-driven instruction empowers students to actively make sense of scientific phenomena. Rather than memorizing facts, learners engage in questioning, evidence-gathering, and reasoning that mirror the practices of real scientists. Participants will examine strategies that foster curiosity, support productive struggle, and build deeper conceptual understanding. Through examples and interactive discussion, the session highlights how sensemaking creates opportunities for all students to connect new knowledge to prior experiences, develop critical thinking, and strengthen problem-solving skills.

Energy and Climate Science for High School STEM — Birch

Amy Hessl, *Dept. Geology & Geography WVU, Morgantown, West Virginia, amy.hessl@mail.wvu.edu*

Exploring Geosciences Solutions (EGeoS) modules are aligned to a range of West Virginia science standards in Biology, Chemistry, Physics, Physical Science, and Earth and Space Science, and blend self-guided and self-paced learning with hands-on classroom activities. In this session, we will be sharing 4 modules: 1) “Controlling Earth’s Temperature”, 2) “White Gold (Lithium) in Appalachia”, 3) “Can Trees Solve Climate Change”, and 4) “Are rare Earth elements in coal waste?”. This collection of learning modules is designed for high school STEM courses to investigate potential solutions to energy and climate challenges in the Appalachian region. WVU faculty in geosciences are joined by WV science teachers who co-developed modules in hands-on demonstrations. We seek additional input from high school educators willing to implement modules and can offer a stipend for their feedback.

Evolution for Educators — Hawthorne

Jen McClanahan, *The Teacher Institute for Evolutionary Science, Princeton, West Virginia, jmcclanahan@k12.wv.us*

The Teacher Institute for Evolutionary Science is a teacher-run project. With over 350 workshops completed in all 50 US States in just eight years, our goal is to inform interested middle school science teachers about the most up-to-date concepts of natural selection and evolution. The session has four parts. 1. A bell-ringer activity on evolution misconceptions, 2. A ready-to-go classroom presentation with valuable evolution content, active learning ideas, embedded videos, and online games. 3. A brief tour of the many peer-shared resources on our webpage, and 4. An inquiry-based activity illustrating how the environment and genetic variation contribute to natural selection. Participants will receive folders with hard copies of the activities and immediate access to digital copies, all free. We also offer free monthly webinars for teachers and their students. Each webinar features a scientist who shares his/her research and answers the attendees’ questions.

Friday, October 24th, 4:00-5:00pm (Continued)

A Force to Be Reckoned With: Using Hands-On and Literacy to Build Elementary Students' Understanding of Forces (K-5) Elm

Jeanna Goodson, *Carolina Biological Supply Co, Burlington, NC, gina.wofford@carolina.com*

Join our interactive workshop where literacy meets exploration! Through investigations, such as testing magnets, participants solve problems and discover strategies to grow literacy skills. Participants will walk away with valuable resources to take back to the classroom.

Saturday, October 25th, 8:30am–8:55am

Earth & Space Science Elementary Engineering Maple

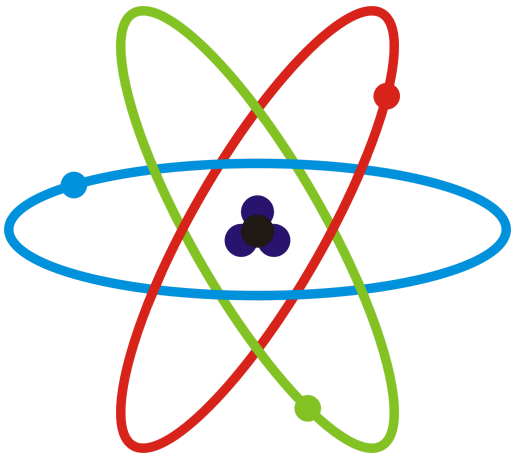
Deb Hemler, *Fairmont State University, Fairmont, West Virginia, deb.hemler@fairmontstate.edu*

Scholars of the 2025 Elementary Earth & Space Science Engineering Program will lead you through an exploration of a suite of elementary grade-level specific lessons. These inductive lessons are integrated with Earth & Space Science and Engineering lessons for elementary grade levels.

Focusing on Student Thinking to Support Meaningful Learning through the 5-E Model of Science Instruction Balsam

Ashley N. Kooken, *Glenville State University, Glenville, West Virginia, ashley.kooken@glenville.edu*

What happens when we start with students' thinking instead of scientific vocabulary? This session explores practical strategies for planning and designing science instruction that makes students' thinking central. Participants will examine student artifacts and 5-E instructional units collected and developed by pre-service teachers that are designed to elicit, build on, and respond to students' ideas. Together, we will analyze examples of student thinking, discuss strategies for supporting sensemaking throughout each of the five phases, and reflect on how to adapt these practices in our own classrooms. Attendees will leave with practical tools and insights for designing science instruction that begins with what students think—and helps them construct deeper understanding.



Physics Curriculum - Comparing High School and College Spruce

April Townsend, *Fairmont State University, Fairmont, WV, april.townsend@fairmontstate.edu*

Some students taking physics at college have taken physics in high school, but many have not. In my experience, previous experience in high school physics sometimes helps students do better in introductory-level college physics, but sometimes it does not. In this session, we will discuss the content of our classes in order to compare high school physics classes to college introductory physics (specifically at Fairmont State University). The goal is to help high school teachers know how to better prepare their students for college physics, while also helping myself and other college physics professors have a better understanding of the backgrounds our students come in with. We will discuss class content, the level of math used, and the depth to which certain key topics are covered. Please bring any example activities or lesson plans you would like to share on the topics of kinematics (including 2D kinematics and projectile motion), forces and Newton's laws, and electric force/field. Physics professors from other universities are also invited to participate.

Campus-Deployed Game Cameras Reveal Biodiversity and Unleash Student Inquiry Birch

Bruce Edinger, *The Linsly School, Wheeling, WV, bedinger@linsly.org*

Ready to enliven your biology and zoology classes with wildlife pictures from your school's grounds? Motion-triggered game cameras – active day and night, working in any weather – once deployed in a natural area, reveal a wide range of animal behavior and engage students. Their images provide stimulating 'bell ringer' reports, can be used to design short and quantitative studies, or may even launch semester-long independent projects for the ambitious student. One campus concept poster and three high school student posters (studying Canada geese, red fox, white-tailed deer) will illustrate how a program of long-term game camera image sampling can allow research findings to interest the local community. They report progress on Linsly's ongoing collaboration with Duquesne University's WILDs community science program, brainchild of Dr. Jan Janecka. This work was presented at the September WILDs Community Partnership Student Symposium on student-led wildlife monitoring at the Carnegie Museum of Natural History.

Saturday, October 25th, 8:30am–9:30am

Using BioInteractive Resources and the Science Practices to Support Student Understanding of Gene Expression **Pine**

Ann Brokaw, *HHMI BioInteractive, Chevy Chase, MD, bergmans@hhmi.org*

During this workshop, we'll explore free HHMI BioInteractive resources focused on helping students understand gene expression by investigating a genetic disease. We will demonstrate how three-dimensional phenomenon-driven instruction makes student thinking and learning visible. Along the way, we'll engage with several science practices, including modeling, analyzing data, and constructing explanations as we model classroom implementation strategies to help students build mastery of molecular genetics. Participants will reflect and discuss how to scaffold and implement the resources and strategies in the classroom to deepen student understanding of how the proteins produced during gene expression are linked to genetic disease.
This workshop is for teachers who teach any level of high school biology or environmental science (introductory, AP/IB, etc.). Middle school teachers, particularly 8th-grade life science teachers, are also welcome to attend.

Science & Computer Science **Hawthorne**

Janalee Thorn, *CodeWV, Morgantown, WV, jpoe5@mail.wvu.edu*

This presentation will offer a look at what CS is and isn't. It will provide some sample lessons to show how Computer Science can be integrated into lessons that teach science topics and content. Participants will have an opportunity to participate in a few sample activities. They will then have the opportunity to explore some resources to utilize in their classrooms.

Making a Lasting Impression **Elm**

Mark Flood, *Fairmont State University, Fairmont, WV, mark.flood@fairmontstate.edu*

Toolmark impressions are often left at the scene of crimes where breaking and entering are involved. Obtaining a cast of these impressions is a critical step in saving critical evidence that can't often be sent to the lab for processing. Participants will learn a little about different impression types and use several different colors of Mikrosil casting material to assess the types of impressions left behind. Please be prepared to get messy!

Saturday, October 25th, 9:05am–9:30am

Earth & Space Science Elementary Engineering **Maple**

Deb Hemler, *Fairmont State University, Fairmont, West Virginia, deb.hemler@fairmontstate.edu*

Scholars of the 2025 Elementary Earth & Space Science Engineering Program will lead you through an exploration of a suite of elementary grade-level specific lessons. These inductive lessons are integrated with Earth & Space Science and Engineering lessons for elementary grade levels.

Focusing on Student Thinking to Support Meaningful Learning through the 5-E Model of Science Instruction **Balsam**

Ashley N. Kooken, *Glenville State University, Glenville, West Virginia, ashley.kooken@glenville.edu*

What happens when we start with students' thinking instead of scientific vocabulary? This session explores practical strategies for planning and designing science instruction that makes students' thinking central. Participants will examine student artifacts and 5-E instructional units collected and developed by pre-service teachers that are designed to elicit, build on, and respond to students' ideas. Together, we will analyze examples of student thinking, discuss strategies for supporting sensemaking throughout each of the five phases, and reflect on how to adapt these practices in our own classrooms. Attendees will leave with practical tools and insights for designing science instruction that begins with what students think—and helps them construct deeper understanding.

Physics Curriculum - Comparing High School and College **Spruce**

April Townsend, *Fairmont State University, Fairmont, WV, april.townsend@fairmontstate.edu*

Some students taking physics at college have taken physics in high school, but many have not. In my experience, previous experience in high school physics sometimes helps students do better in introductory-level college physics, but sometimes it does not. In this session, we will discuss the content of our classes in order to compare high school physics classes to college introductory physics (specifically at Fairmont State University). The goal is to help high school teachers know how to better prepare their students for college physics, while also helping myself and other college physics professors have a better understanding of the backgrounds our students come in with. We will discuss class content, the level of math used, and the depth to which certain key topics are covered. Please bring any example activities or lesson plans you would like to share on the topics of kinematics (including 2D kinematics and projectile motion), forces and Newton's laws, and electric force/field. Physics professors from other universities are also invited to participate.

Campus-Deployed Game Cameras Reveal Biodiversity and Unleash Student Inquiry **Birch**

Bruce Edinger, *The Linsly School, Wheeling, WV, bedinger@linsly.org*

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Saturday, October 25th, 9:45am–10:45am

Spotlight on SPOT: Supporting Teachers' Classroom Needs **Maple**

Sophie Saint Georges, *Green Bank Observatory/ WV SPOT, Green Bank, WV, sdesaint@nrao.edu*

Come play with us and explore scientific content through hands-on activities that you could plug into your next STEM Night or classroom unit. Experiment with the Green Bank Observatory's 20m robotic telescope, luminescence applications in biomedical engineering, and the forces of drag on satellites. The SPOT Program showcases innovative WV research while meeting academic standards that can tie into almost any curriculum.

Launch Into Learning: Punkin-Chunkin with mini Catapults **Balsam**

Teresa Barton, *PikeView High School, Princeton, WV, tbarton@k12.wv.us*

Teachers will build and test a working mini catapult from simple materials, explore projectile motion and energy transfer through hands-on inquiry, and practice strategies to bring this engaging, low-cost activity back to their own classrooms.

High School Robotics Students Engaging Elementary Students in STEM **Spruce**

Chuck Trautwein, *Garrett County Public Schools, Accident, Maryland, chuck.trautwein@garrettcountyschools.org*

Whether it's VEX, SkillsUSA, or FIRST, these youth robotics programs instill a passion for STEM in students. Garrett County Public Schools (Maryland) leverages this passion by allowing its high school robotics students to teach highly engaging, standards-based, and scalable lessons in grades 2 through 6 - making a systemic impact. These lessons produce many "ah-ha" moments and help ensure that elementary-aged students develop the skills needed for their success in STEM. This session will feature high school students sharing about their lessons and the "gadgets" they use to teach, including a LEGO Top Spinner, a "math-magic" trick revealing the importance of binary numbers, a set of LEGO calipers that exactly determine the Golden Ratio and homemade "Makey Makeys" AND participants will get all these "gadgets" to take home! This program has been a huge "win-win" success, and our students' passion is contagious. They will inspire you with the difference they make!

Flipped-Mastery Learning for Science **Pine**

Rachel Eades, *West Virginia Department of Education, Charleston, West Virginia, reades@k12.wv.us*

Experience a dynamic, hands-on session inspired by one of the trailblazers of flipped classrooms and mastery learning. Discover how this innovative approach boosts student learning and builds confidence in budding scientists through active, inquiry-based science exploration. Join us to see how science instruction can be reimagined and revitalized in a non-traditional classroom setting. Note: This session has a brief preview; please access the form before the session.

Enhance STEM Learning with Hydroponics **Birch**

Laurie Ruberg, *PLANTS, LLC, Wheeling, WV, lfruberg@gmail.com*

Hydroponics can be used to engage students in a variety of STEM investigations. For example, comparisons of the growth and reproduction processes of tomatoes, strawberries, and kale can easily be done on simple, inexpensive hydroponic systems. Growing plants from seed to harvest provides practical life-support skills as well as offering firsthand visual experiences with the variations in plant processes and life cycles. This session demonstrates how hydroponics can be used to grow food at a small- or large-scale —based on the system set up and space available. Using fast-growing plants, hydroponics makes the study of plant growth and development immediately visual and accessible for student research projects. Three different hydroponic systems with plant installations will be demonstrated for comparison. The book, Hydroponics for Home and School Gardens, will be available for purchase. A resource book that includes six hydroponics lab activities will be available for download.

Discover the All-New Challenger Learning Center! **Hawthorne**

Jackie Shia, *Challenger Learning Center, Wheeling, WV, jshia@wheeling.edu*

Thanks to a $3 million NASA grant, our renovated Center features a state-of-the-art Mission Control, Spacecraft, and Transporter Room for immersive STEM adventures.
Students in grades 5 and up can experience exciting space missions, working as astronauts and engineers to solve real challenges. Younger learners (K–4) enjoy Micronaut Missions, introducing teamwork and science through hands-on activities. For schools unable to visit, e-Missions® and e-Labs deliver live, interactive problem-solving experiences straight to classrooms. We also provide teacher training, professional development, and community events like National Read Aloud Day and our All Center Mission Flight Day to inspire lifelong learning. Give your students the chance to explore, discover, and dream big with Challenger Learning Center of Wheeling.

Saturday, October 25th, 9:45am–10:45am (Continued)

The Learning Cycle in Science - It's Magnetic! Elm

Angela McKeen, *Fairmont State University, Reynoldsville, WV, amckeen@fairmontstate.edu*

Teaching magnetism and forces at a distance through a Learning Cycle engages the students in hands-on, experiential learning immediately. As elementary science teachers, we do not want to steal the "A-Ha" moments from our students. To keep students from feeling that science is meant to find a "right" or "wrong" answer, we need to present the science concepts in such a way that active exploration does not call for a single answer. Rather, we want students to experience science in a way that leads them to a deeper understanding, not necessarily a perfect one.

Saturday, October 25th, 11:00am-12:00pm

Would you Have Survived in 1800? Graphing Real Data! Pine

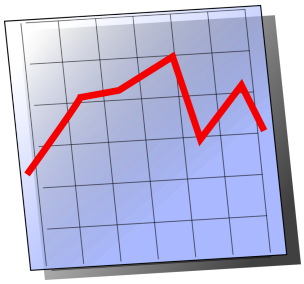
Jen Mclanahan, *ScienceSaves, Princeton, West Virginia, jmcclanahan@k12.wv.us*

ScienceSaves promotes the fact that thanks to science, individual lives are healthier and easier. Our free lessons teach graphing, data analysis, engineering practices, and more. They include teacher notes, curriculum standards, rubrics, and lesson plan documents. In addition, high school seniors can apply for our $15,000 scholarship at www.sciencesaves.org!!
After a brief introduction about the ScienceSaves program, After a brief introduction about ScienceSaves, we'll introduce the "Life Expectancy" lesson (https://sciencesaves.org/2024/05/28/life-expectancy-video/), using a graph to show how child mortality rates in the U.S. have dropped dramatically (1800-2020). By analyzing real-world data, students strengthen graphing and data skills while gaining an appreciation for science's role in improving public health. The visual nature of the graph allows learners to connect mathematical trends with historical advances such as vaccines, sanitation, and antibiotics, making abstract numbers meaningful and relevant.

Teaching Intentionally with Gizmos Spruce

Dustin Lackey, *ExploreLearning, 101, Charlottesville, dustin.lackey@explorelearning.com*

Learn strategies for teaching science with Gizmos. We will learn how to use our state alignment system to implement the perfect Gizmo for your lesson. After this, we will work as a group to solve a real-world problem using a Gizmo! ExploreLearning Gizmos have many resources to help you be successful in teaching your science lesson! Let's find them!



Sensory Consideration in the Science Classroom **Pine**

Diana Aston, *Magnolia High School, New Martinsville, WV, Leslie.lausten@schoolspecialty.com*

The Sensory Considerations in the Science Classroom session will provide educators with insights and ideas on how to effectively address the needs of special education students in general science classrooms. Research has demonstrated that engaging the senses during lesson activities provides a pathway to deepen understanding, activate the brain, and build connections to previous and new complex science content topics. Participants will experience meaningful involvement and gain useful information for decreasing students' stress and anxiety in the classroom, helping them to connect and find real-world relevance to the content.

Geologic Structures and Maps **Elm**

Josh Revels, *Fairmont State University, Fairmont, West Virginia, jrevels@fairmontstate.edu*

In preparation for the post-conference waterfall field trip, uncover the structural features of anticlines and synclines represented on geological maps with an interactive Play-Doh model. Take a closer look at the geologic structures evident in the topography of Canaan Valley.

Plan to join us for Future Conferences

October 22nd-24th, 2026_____Flatwoods Conference Center
Flatwoods, WV

Exhibitors

3Z's Instruments, LLC.

http://3zsllc.com/
Mr. Tim Zickefoose
Tim@3zsllc.com
(800) 247-2726

by the Robin

Robin Sizemore
bytherobin@gmail.com
bytherobin on Facebook

Carolina Science

melanie.falcon@carolina.com
Melanie Falcon
743-251-4403

EF Educational Tours

Ryan Linger
Ryan.Linger@ef.com
304-362-9624

ExploreLearning

Dan Peterson
Daniel.Peterson@explorelearning.com
886-882-4141 x395

McGraw Hill

https://www.mheducation.com/
Mark Hurt
mark.hurt@mheducation.com

National Geographic Learning/Cengage

David Deleo
David.Deleo@cengage.com

PLANTS, LLC

e-learningtalk.com
Lorena Ruberg
304-639-3894

Exhibitors (continued)

Prodigy Learning

AI Ready Skills
aireadyskills.com/wv
Catrina Hunzeker
catrina.hunzeker@prodigylearning.com

Savvas Learning Company

https://www.savvas.com/
Amanda Ansell
amanda.ansell@savvas.com

School Specialty

www.schoolspecialty.com
Kevin Stinson
FOSS and OpenSciEd Specialist
kevin.stinson@schoolspecialty.com
859-814-4365

SMART Centre Market

www.smartcenter.org
www.smartcentremarket.com
Robert Strong
robert@smartcenter.org
Libby Strong
libby@smartcenter.org
304-23-DINOS (304-233-4667)
1410 Main Street, Wheeling, WV

Non-Profit Vendors

Non-Profit Exhibitor	Website
Concord University, Physical and Environmental Sciences	**https://www.concord.edu/physci**
Challenger Learning Center at Wheeling University	**clcwheeling.org**
Glenville State University	**https://www.glenville.edu/health-sciences**
HHMI BioInteractive	**https://www.biointeractive.org**
STEMpact WV & Moorefield Robotics	**https://stempactwv.org/**
WV Association of Conservation Districts	**https://www.wvacd.org/**
WV Career Collaborative	**wvcareercollab@gmail.com**
W.V. Dept. of Environmental Protection -Project WET & Youth Environmental Program	**https://dep.wv.gov**
WV Envirothon	**www.facebook.com/WVEnvriothon**
West Virginia University C. Eugene Bennett Department of Chemistry	**www.chemistry.wvu.edu**
WV SPOT	**https://wvspot.org**

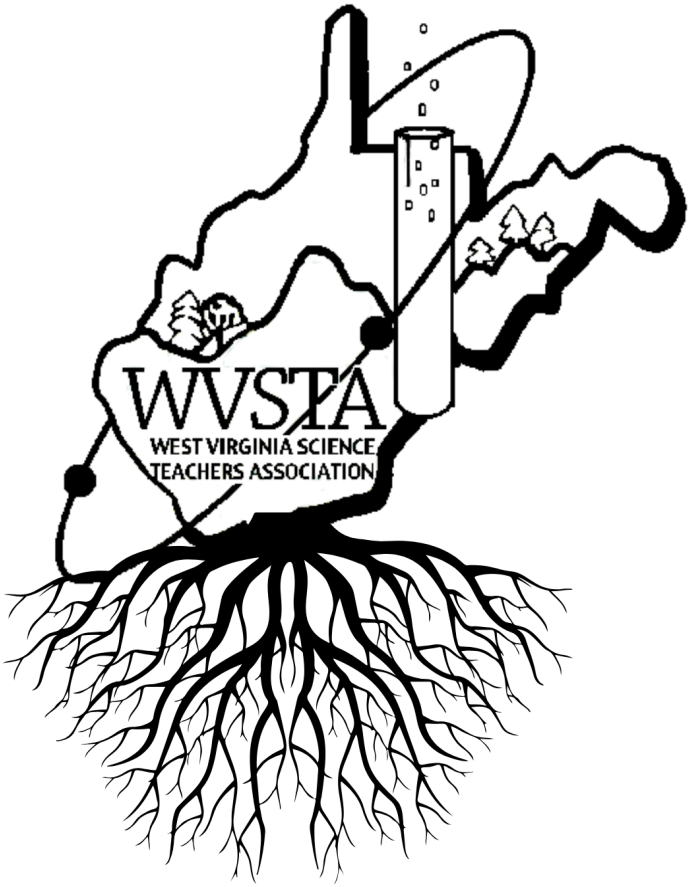
Special Thanks

This conference would not be possible without the above and beyond actions of many individuals and organizations. Please make an effort to give special thanks to:

- WV SPACE GRANT CONSORTIUM for providing the printing and binding of the conference program.
- WV SPACE GRANT CONSORTIUM for providing registration for 4 Elementary Earth & Space Science Engineering Teachers.
- By the Robin (Robin Sizemore) for her creativity and generous donation of speaker gift baskets.
- WVSTA for sponsoring the conference bags.
- WVSTA for providing the name badge holders
- FAIRMONT STATE UNIVERSITY, for printing the Matrix.
- WVSTA for sponsoring Breaks.
- VENDORS for sponsoring the Vendor Reception
- FAIRMONT STATE UNIVERSITY for printing registration materials.
- Amelia Reaser for preparing the registration materials.
- ALL THE GENEROUS VENDORS who supplied door prizes.
- ALL OF THE PRESENTERS who prepared and shared their passion for science education;
- ALL who made tours possible and helped to make this a great conference; and
- ALL of you who attended, because without attendees, there is no conference!

A state conference is a huge undertaking and is the work of many people. The cooperation and helping hands that have been extended to WVSTA and the conference committee have been invaluable. Thank you to everyone who made this conference possible.

WVSTA 2025 Art Contest Winner



ROOTED

IN SCIENCE

Katelyn Choate
Princeton Senior High School
Teacher: Jennifer McClanahan

CERTIFICATE OF ATTENDANCE

Presented to

_____

for Participation in the
West Virginia Science Teachers Association Conference
October 23-25, 2025
Canaan Valley Resort in Davis, WV

_____
Davita Melander
2023-25 WVSTA President

_____
Dr. Deb Hemler
WVSTA Executive Director

In Memoriam

Ray E Garton (1950-2025)

E. Ray Garton, geologist, paleontologist, and science educator for many years in West Virginia, passed away on October 10, 2025. Ray was 75 years old. Ray was a consistent supporter of WVSTA over the years. In the early years he and Mary Ellen hosted the "fossil" store in the vendor hall, later becoming the vendor coordinator for many years bringing exhibits with him. He participated and assisted on geology field trips and conducted many engaging fossil workshops for teachers. Anyone who doesn't understand his impact should just visit the museum at the WV Geologic and Economic Survey, which he created and curated, to see his lasting legacy to our state. WVSTA has suffered another great loss.

Several quotes from WVSTA members in response to Facebook posts regarding Ray's passing are as follows:

"He was an integral part of the caving and paleo communities in West Virginia, a mentor and a dear friend. To say he will be missed is an understatement."

"What a true treasure he was. There are no words to express our sadness at his passing."

"He was a wonderful man and will be missed."

"Ray was a friend, a colleague, and a mentor. I will miss his smile, his humor, and his good advice. My wife and I cannot look in any direction of our lives in the last 16 years where he has not made a positive impact."

"It is a loss for the science community as a whole. He was a great man."

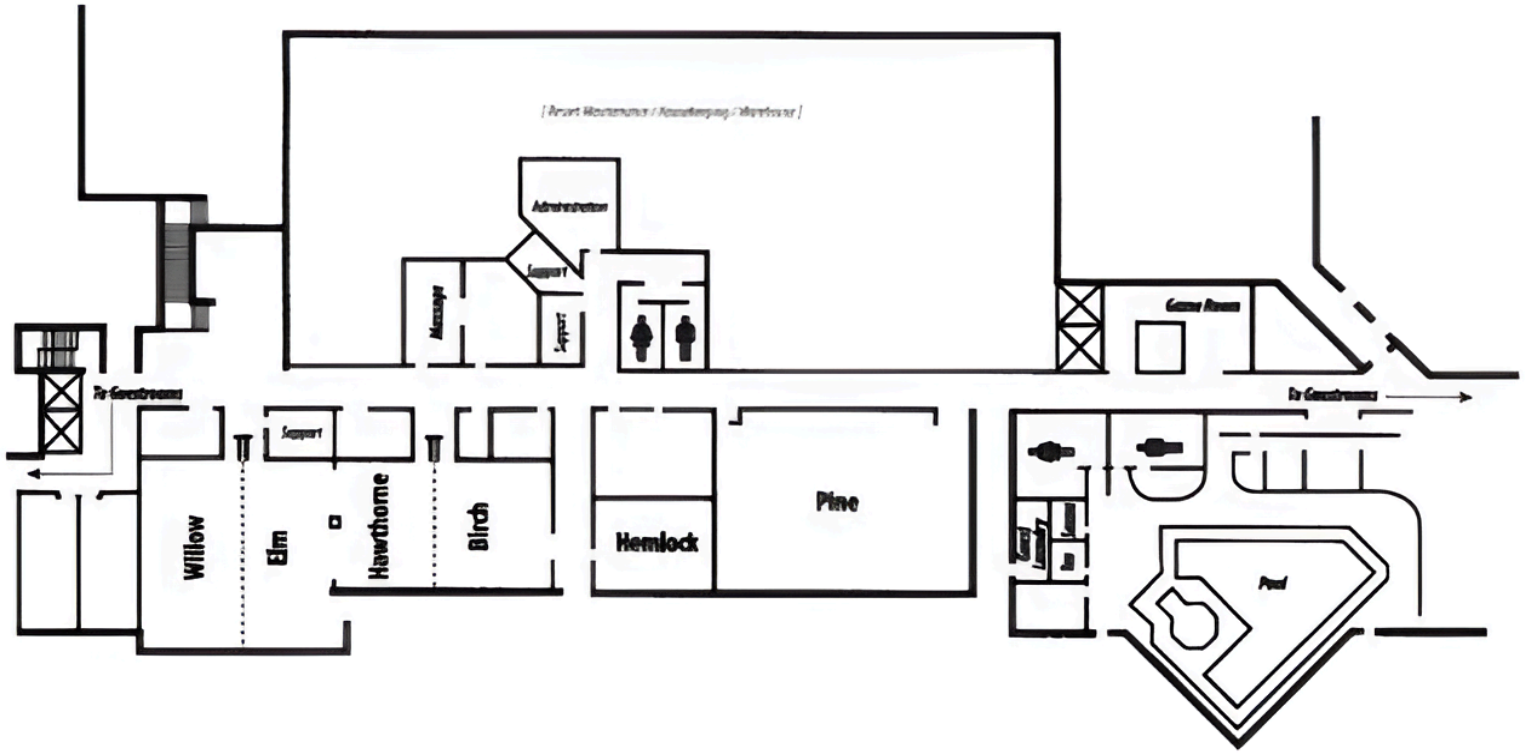
"His memory will be with us, and the good that he did will echo for generations to come. We will miss him."

"What an impact he left in this world, influencing generations of teachers and students."

"He touched so many that his love for the natural world will continue to spread."

"I was looking forward to our next WVSTA field trip. He was always such a wonderful resource."

Perhaps his wife of 54 years, Mary Ellen, said it best "he touched many In all walks of life, and enjoyed sharing his knowledge with all, but especially members of the next generation. He wanted young people to develop the love and passion he had for all things science."


Administration
Support
Massage
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Elm
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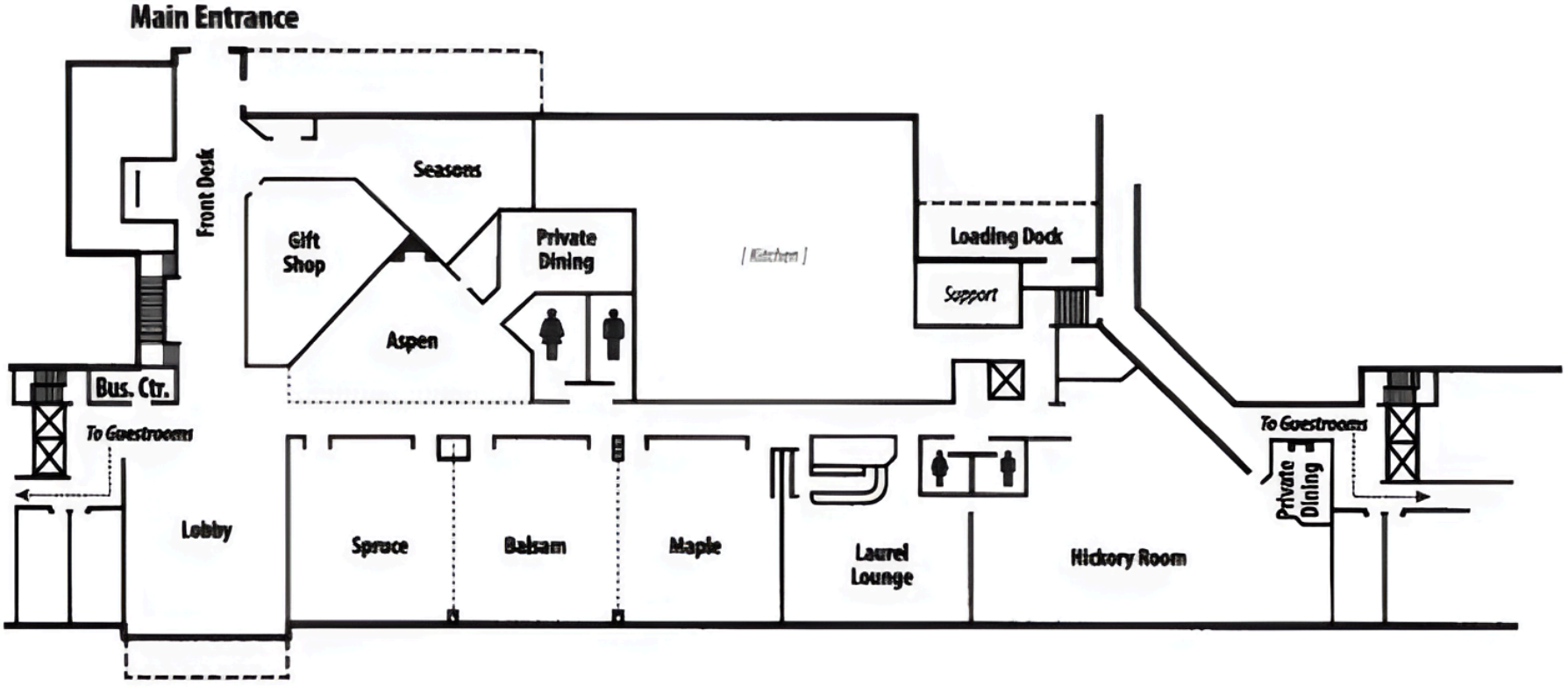
Hawthorne
Birch
Hemlock
Pine
Pool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Front Desk
Seasons
Gift Shop
Private Dining
Aspen
Loading Dock
Support
Bus. Ctr.
To Guestrooms
Lobby
Spruce
Balsam
Maple
Laurel Lounge
Hickory Room
To Guestrooms
Private Dining