STEMCARE NEWS

A Collaboration Between

WestVirginiaUniversity. | Mylan®

TURNING POSSIBILITIES INTO OPPORTUNITIES

Volume 1 • Issue 2 | FALL 2020-21

West Virginia students and families take part in the Rube Goldberg "Bar of Soap" Challenge

The WVU Rube Goldberg Bar of Soap Challenge was a huge success. Thank you to all the West Virginia families that participated!

In May of 2020, WVU Extension Service and Mylan STEMCARE encouraged West Virginia families to participate in the Rube Goldberg Bar of Soap Video Challenge by having them submit video entries that highlighted their machines. The challenge was synchronous with the Rube Goldberg Foundation competition, which invited families from all over the world to work together to build a Rube Goldberg machine that drops a bar of soap into someone's hands. By using creativity and innovation, participating families built a machine that caused a chain reaction of events (10-20 total steps), leading to a bar of soap dropping into someone's hands.

WVU Extension Service and Mylan STEMCARE received entries from 13 West Virginia families and awarded prizes to five winning machines. Families competing in the national competition were eligible to win additional prizes. A big congratulations goes out to the Orrego Family for winning the "Family Fun" award from the national competition. All entries received a fun collection of WVU swag!

First Place: The Morris Family

Second Place Tie: The Solanki Family, The Orrego Family (they also won the "Family Fun" award from the national competition)

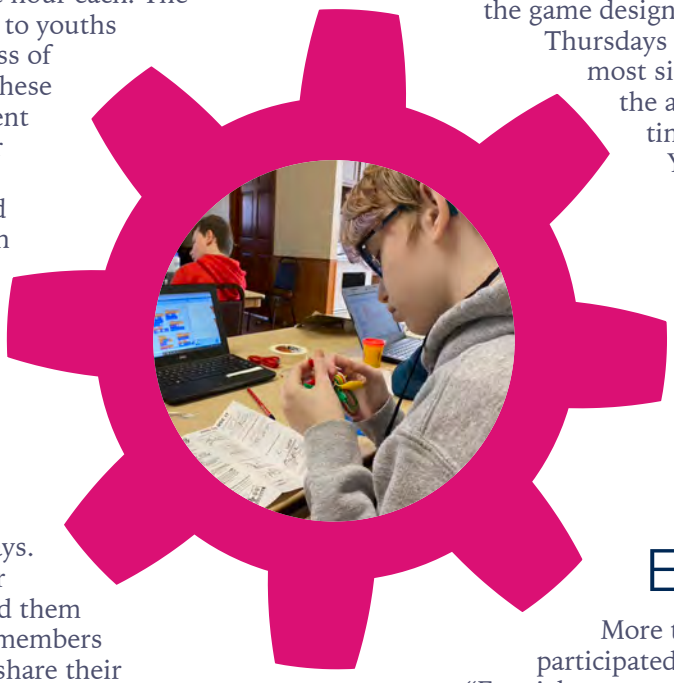
Third Place: The Chang Family

Fourth Place: The Tomlinson Family

You can view all of the winning machines at the STEMCARE website here ***extension.wvu.edu/stemcare***. Congratulations to all of our winners and a big thank you to everyone that participated in the Bar of Soap Challenge!

Virtual code clubs and coding workshops

During May and June 2020, STEMCARE and the 4-H CS Innovator program taught computer science skills to state 3rd through 8th graders through several game design clubs. Each club ran for eight sessions, meeting for one hour each. The clubs were free and open to youths across the state, regardless of their 4-H membership. These clubs served as an excellent introduction to computer science by using the CS First curriculum provided by Google in coordination with the drag-and-drop programming language Scratch. Using their newfound CS knowledge, youths created maze and racing games.



Clubs met twice a week on Tuesdays and Thursdays. Students showcased their work while we introduced them to the next lesson. Club members could ask questions and share their projects during this time. If members missed a club session or had limited internet access, the sessions were recorded and shared, so they could still participate.

"With everything being virtual, we found it easier to set up these clubs, given that the content and material were all online. We also found kids were eager to participate in this to spend time with their peers," said Kati Baker, Computer Science Innovator, WVU Extension Service. The clubs were led by Jennifer Robertson-Honecker, Kati Baker and Emma Gardner with help from two STEM Ambassadors, Ethan Meighen and Mitch Clowes.

Over 300 youths from more than 40 counties learned computer science by participating in the game design clubs.

July Workshops

With the success of the game design clubs in May and June, 4-H ran eight stand-alone virtual computer science workshops for youths ages 8 to 16. The curriculum covered a wide variety of topics, including creating art and music programs with Scratch, using code to create 3-D objects in Tinkercad, and learning web development through Code.org.

These workshops maintained a similar format to the game design clubs, meeting Tuesdays and Thursdays for two-hour sessions. The most significant difference was that the activities were done in real-time alongside the instructors. Youths had the opportunity to ask questions and receive feedback. More than 50 youths participated in the July workshops.

Virtual Eco-Adventures Club launched by WVU Extension

More than 25 West Virginia youths participated in the highly anticipated "Eco-Adventures Environmental Virtual Club." Every Tuesday from June 30 through August 11, 2020, students ages 8 to 16 were able to learn about organisms and their habitats, environmental stewardship, and the best practices to protect the environment. Guest speakers from West Virginia

Hayden Fillhart taking part in the "build a cattail boat" challenge as part of the Eco-Adventures Club.

Continued

University and the West Virginia Department of Environmental Protection shared their expertise on topics including living organisms around us, wetlands, soils, invasive species, water, upcycling and your ecological footprint. Students were able to participate in seven highly interactive sessions that covered a broad spectrum of environmental topics, including:

- "What is THAT?" Living organisms/WVU Insect Zoo with Suzanne McDonald
- "Macros at the Mill" Macroinvertebrates and healthy streams with Jason Fillhart.
- "Wild Wonderful Wetlands" with Tomi Bergstrom, West Virginia Department of Environmental Protection
- "Are Soils Alive?" with Jim Kotcon, associate professor of plant pathology in the WVU Davis College of Agriculture, Natural Resources and Design
- "One and Done," with Sara Prior and Tom Aluise, West Virginia Department of Environmental Protection
- "Frog Calls" Identify West Virginia frogs by their calls with Sarah and Sheldon Owen
- "Budburst and Citizen Science Projects" with Suzanne McDonald

Every week, students were given a list of challenges associated with the weekly lesson. Students were encouraged to complete these challenges and post their work to Padlet for others to see. Those who participated in at least five challenges were eligible to win a superb field microscope. All participants received a field kit that included soil and a variety of West Virginia native plant seeds. At the end of the seventh week, students put on a showcase of their EcoAdventures work.

Congratulations to Luke Thomas from Mason County for winning the field microscope. Thank you to all of our youth participants and guest speakers for putting on such wonderful lessons!

3,000+ "Engineering is Elementary" kits and "Your Fantastic, Elastic Brain" books distributed to Energy Express for summer learning

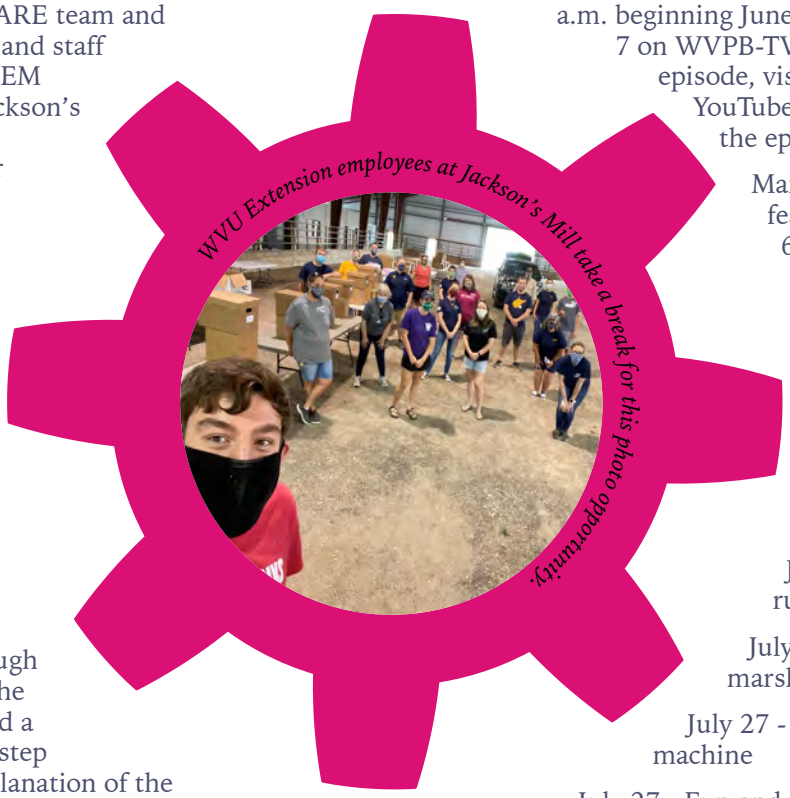
The Mylan STEMCARE team and additional WVU Extension Service employees helped ship out more than 3,000 "Aisha Makes Work Easier" engineering kits and "Your Fantastic, Elastic Brain" books to county offices in early June. Staff from 36 counties distributed the kits and books to youths enrolled in the Energy Express program.

Energy Express leaders were trained to deliver lessons relevant to the kits and how to lead discussions on growth mindset. A full week of Energy Express programming was dedicated to the book and engineering activities.

A special thank you goes out to Benjamin Bradley for his tremendous help in getting all of these kits into the hands of West Virginia youths.

More than 25,000 “Try This” kits distributed to West Virginia youths for summer learning

On June 5, the STEMCARE team and around 20 state faculty and staff members, ECIs, and STEM Ambassadors met at Jackson’s Mill State 4-H Camp to pack over 350 boxes for county use. 25,000 at-home STEM kits were distributed to youths across the state. The kits were used by participants at virtual 4-H camps and Energy Express locations. The kits also were distributed at summer feeding sites and through county backpack programs.



WVU Extension employees at Jackson’s Mill take a break for this photo opportunity.

Each kit contained enough materials to complete the at-home experiment and a pamphlet with step-by-step instructions and an explanation of the science behind the activity. Youths had an opportunity to receive kits that provided hands-on learning with UV beads, ghost spheres, rubber band helicopters, and grow dinosaurs.

Energy Express on WVPB-TV programming featured STEMCARE activities

This summer, WVU Extension Service and West Virginia Public Broadcasting (WVPB) partnered to bring programming into the homes of West Virginia families. Beginning June 29, 2020, viewers tuned in to WVPB-TV to enjoy engaging and fun activities in literacy, STEM, art, cooking, nature and more.

WVU Extension Service’s Energy Express programming on West Virginia Public Broadcasting aired Monday through Friday from 9:30 a.m. to 10 a.m. beginning June 29 through August 7 on WVPB-TV. If you missed an episode, visit our Energy Express YouTube channel to watch all of the episodes!

Many STEM activities were featured throughout the 6-weeks of programming on WVPB-TV. Here is a sample of the STEM activities featured in the series:

June 29 - Balloon car activity

June 30 - The Science of Ice Cream

July 2 - How to build a rubber band car

July 23 - How to make a marshmallow catapult

July 27 - Build our own simple machine

July 27 - Fun and messy Oobleck activity and reading

July 31 - Kinsey Walker, National Energy Technology Laboratory - Rosie Revere Engineer reading and engineering experiment Tim Goodenow, Mylan, Your Fantastic Elastic Brain Reading.

Host of Energy Express on WVPB-TV programming Joel Brown.

STEM Ambassador Spotlight

The STEMCARE team was able to hire four returning STEM ambassadors from last year to assist in providing virtual and at-home STEM engagement for West Virginia youths this summer. Ambassadors helped the STEMCARE team and their county agents in various aspects of youth STEM development this summer. Please see their stories below.

Abbey Barker

I am studying industrial engineering with a minor in communication studies at West Virginia University. I am a 4-H'er from Jefferson County. I became a STEM Ambassador because I wanted to make an impact on campers' lives all over the state. One of my favorite memories as a STEM Ambassador happened last summer when I was at Hancock County Camp. I was placed in the 9-year-old girls' cabin for the week. At the end of the week, one of the first-year campers in my cabin told me how excited she was to come back to camp next year and that her favorite part of camp was the STEM class I taught.

This summer while working in the Berkley County Extension Office, I packed more than 8,000 STEM kits. 3,000 kits have already been distributed to the 4-H'ers and the Boys and Girls clubs in the community. The other 5,000 kits will be used in the classroom this fall. There are 14 different STEM kits that the county offers, some of which I helped develop.

Ethan Meighen

My name is Ethan Meighen, and I'm from Clarksburg, West Virginia. I attend West Virginia University where I'm studying both computer science and biometric engineering. I want to use this to eventually work for the FBI to create better and safer technology for everyone to use. I have many hobbies, including 4-H, playing tennis, watching movies, playing video games, and building Lego sets.

I became an ambassador because I thought it would be an awesome summer opportunity — getting to go to multiple camps to teach STEM and meet so many new people sounded amazing. And it was. I've been an ambassador for three years now, and I hope to be one for as long as I can.

This summer, I accomplished many things. I figured out how to properly work from home, the best way to lead an online class with screen sharing, how to stop the students from annotating on their own, and how to accomplish a lot with only a small group of people. My favorite moment this summer was during our game design class. One of the students included me as the main character in their game, which was super awesome and super fun to play.

Devann Fox

I grew up in Wetzel County, West Virginia, in a small community called St. Joseph Settlement. Throughout my life I have been involved with the 4-H program through clubs, camps and projects. As I became an adult, I realized that 4-H had fostered a love for working with youths and education. I am currently a senior at West Virginia University majoring in agriculture and extension education. I hope to one day become a high school agriculture teacher.

I became a STEM Ambassador last summer. Being in this position allows me to work with youths in a setting I loved as a child, and I get to encourage West Virginia children to explore the possibilities and fun that STEM learning presents. I loved this position so much that I came back for a second year!

This summer we worked remotely; however, I was still able to reach at least 800 youths through Camp URL, take home experiments, and specialized Zoom clubs. Remote camping gave me the opportunity to explore activities for campers. During my week with Mason- Dixon 4-H Camp URL, I was able to plan an agriSTEM lesson about dairy cows and their products. We made ice cream in a bag while on Zoom. You could tell that the campers really enjoyed it, and I was able to practice my lesson planning abilities.

Mitchell Clowes

My name is Mitch Clowes, and I am from Wood County. I've been studying exercise physiology for two years at West Virginia University, and I am currently a junior. I have been involved in a lot of STEM-related activities and projects. Getting to continue that with my degree and my summer internships has been a lot of fun. A few hobbies I am very interested in are backpacking, hiking and music. I play guitar and a few other stringed instruments. With coding club this summer, we brought in music to a few of our activities which was super cool. I have future aspirations to either apply for physical therapy school or take my undergraduate degree to a master's program in exercise physiology.

I became an ambassador because it was a great fit for me and a great opportunity to be able to use my skills of interest to give back and be useful throughout the state. I love summer camps and going to them for all of my life has set me up well to have this position. I was also looking for a way to explore teaching STEM topics to younger kids and being an ambassador has been great for that.

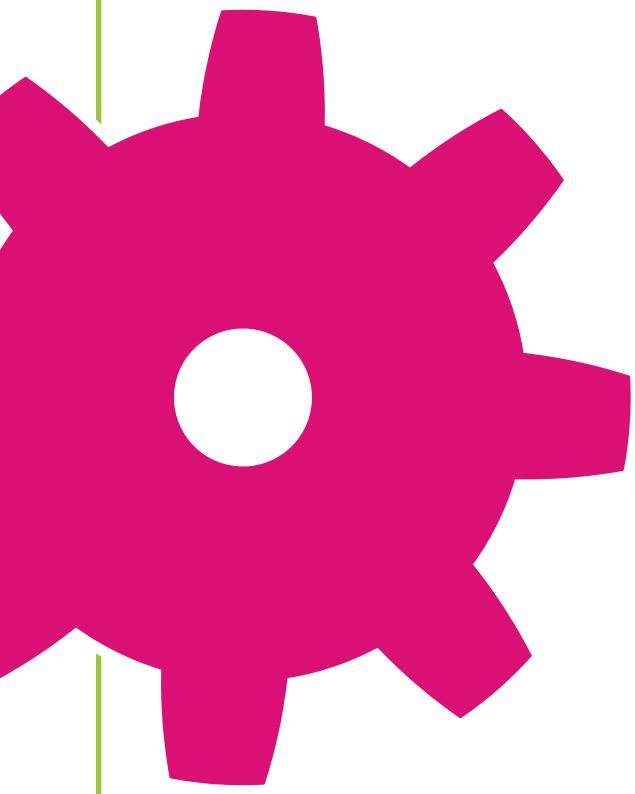
This summer as an ambassador I have been able to assist leading multiple coding clubs and make informational videos for the Energy Express WVPB program. My favorite moment from this summer was shooting a video at Jackson's Mill on macroinvertebrates with a few members from the STEM team. It was a lot of fun!

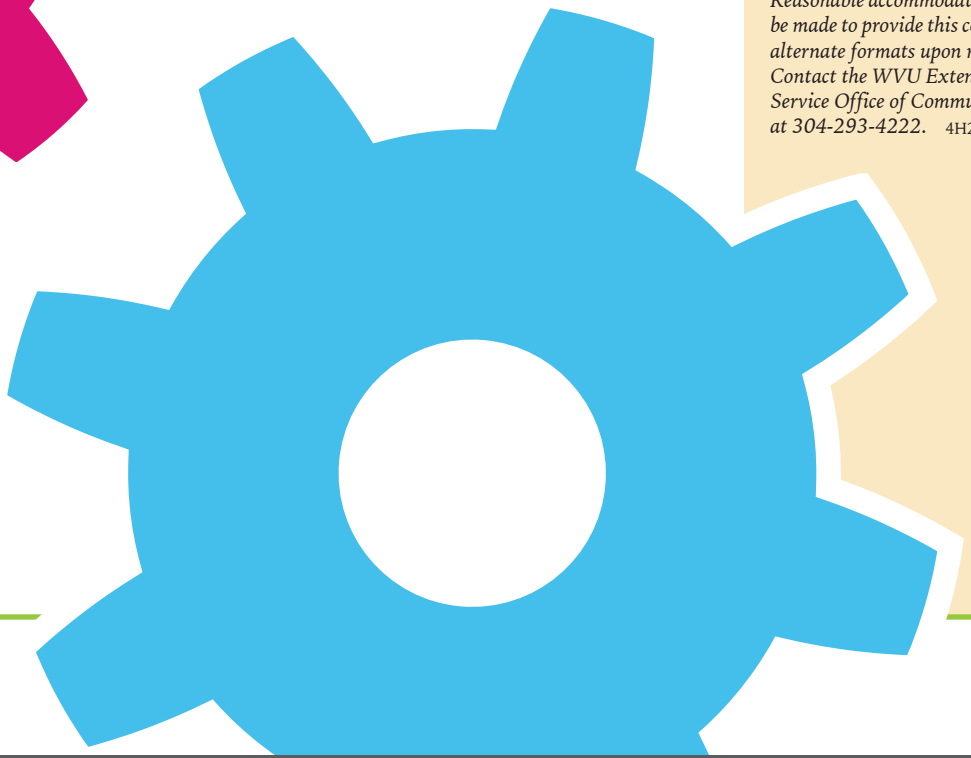
Teacher virtual coding training offered in August

More than 100 state and national educators took part in a virtual coding training class on August 10 and 11 that focused on CS First (***csfirst.withgoogle.com***), a free web-based program created by Google that uses video tutorials that compliment Scratch, a block-based coding tool developed at MIT (***scratch.mit.edu***). The instructional videos provided on the CS First platform guide students through each activity, allowing students to work independently.

WVU Extension Service uses the CS First and Scratch platforms to run coding workshops and clubs with thousands of youths across West Virginia. When quarantine measures were enacted, Extension transitioned to virtual facilitation and successfully ran both stand-alone workshops and multi-week clubs with over 300 statewide youths. Given the uncertainty of youth programming for the fall and spring semesters, the STEM team wanted to provide an opportunity to train educators on the platforms while sharing best practices for both virtual and face-to-face facilitation.

The first training introduced the CS First and Scratch platforms from the youths' perspective, including how to sign-in and code your first program. The training also covered computational thinking and growth mindset, as well as best practices for teaching both virtual and face-to-face classes. In the second training, educators were taught how to create a teacher account, create a class and choose curricula. Time was also devoted to incorporating state standards and subject-specific content like English, history/social studies, math, science, art, music, interactive presentations, reading and storytelling.





About STEMCARE

Jennifer Robertson-Honecker, Ph.D.
Associate Professor, STEM Specialist
Mylan STEMCARE Director
304-293-8130
Jen.Robertson@mail.wvu.edu

Staff:

Jason Fillhart
Program Coordinator
304-293-9322
Jason.Fillhart@mail.wvu.edu

Suzanne McDonald
Assistant Professor
304-293-9892
smcdonald@mail.wvu.edu

Contact Us:
WVU Extension Service
4-H Youth Development
PO Box 6031
Knapp Hall
Morgantown, WV 26506

extension.wvu.edu/stemcare