

STEM MATTERS

Mathematics and Science
Education Center

APPALACHIAN STATE UNIVERSITY



ACADEMY STUDENTS EXPLORE CLIMATE CHANGE

Second graders from the Academy at Middle Fork return to campus to learn about science with faculty from Appalachian. In the morning, students were treated to demonstrations by Jeff Goodman of the Department of Curriculum and Instruction. Later in the day, students heard from Dr. Saskia van de Gevel and Dr. Baker Perry of the Department of Geography and Planning. Perry, who researches alpine precipitation and climate change, regularly ventures to the Andes

and Himalayas for research and participated in the 2019 National Geographic and Rolex Perpetual Planet Everest Expedition to place weather stations at some of the highest points in the world. Additional information can be found on page 4.

Left, Jeff Goodman presents a science demonstration.

Right, Baker Perry explains how weather stations work after sharing items from his expedition with students.

Photo Credit: Chase Reynolds, UComm.

MSEC & PARTNERS TO HOST ENTREPRENEURSHIP ACADEMY

The Mathematics and Science Education Center, along with partners EntreEd and STEM West, has received funding from the Appalachian Regional Commission (ARC) to host a two-week residential program for high school students from across the 13-state region of Appalachia. The program, limited to just 26 promising young entrepreneurs, will include content in entrepreneurship, conversations with regional business owners, and a *Shark Tank* style pitch contest presented to an audience of community members and faculty.

The Appalachian Entrepreneurship Academy includes opportunities provided by campus partners as well, such as an etiquette dinner and networking skills activities. Partners EntreEd and STEMWest

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More Resources

There's always more at our website:

msec.appstate.edu



FROM THE DIRECTOR

TRACIE MCLEMORE SALINAS

"Starting over can be challenging, but also it can be a great opportunity to do things differently."

-- Catherine Pulsifer, author

In the last two years, we've missed a lot of things. We've been having conversations around the implications of unfinished learning in the classroom, but we are just beginning to explore the impacts of missed STEM fairs and contests, residential programs, and conferences.

This year, as we begin to host events again and see students on campus, it may seem as if we are starting from scratch. In some cases, students haven't participated in events in years or may have experienced virtual versions of events. Many events have not yet developed familiarity to new teachers or have fallen off priority lists in schools and districts where instruction, health, and safety have been of more immediate concern.

The challenge of restarting these events is also an opportunity, though. It's an opportunity to redesign events to be more inclusive. It's an opportunity to reorganize events to reflect a changing world. It's an opportunity to engage with new partners and to reflect on our changing roles.

With that in mind the MSEC staff and stakeholders are focused on making events more inclusive, whether that includes attending to representation of diverse STEM professionals or examining how our booths and activities in the STEAM Expo enhance the experiences of students with visual or hearing impairments or

sensory sensitivities.

We invite you to connect for ideas or resources related to the work of STEM inclusivity, whether you have ideas for the MSEC or would like to improve the services you provide.

Below are some great starting points for conversation for your teams.



For the White House report on best practices in STEM inclusivity, [click here](#).



Interested in Universal Design for Learning for teaching in STEM? [Explore this video](#).

KEY TO INTERACTIVE NEWSLETTER

Throughout this newsletter, if you see the following icons, click on the indicated link for more content.



More written content online. Click the link to read more on this topic.



Video or audio available. Click the link to view or hear additional media.



Click this link for opportunities to volunteer or sign up for events, or connect with someone.

PUBLIC SCHOOL PARTNERSHIP: STEM IN ASHE COUNTY

Beginning Teacher (BT) Charlene Horton of Ashe County Schools, who was a nominee for the NC Beginning Teacher of the Year Award, developed connections with NASA and their space program along with Elon Musk and SpaceX in her first year of teaching. Her students zoomed with scientists multiple times, and her students created artwork that was taken into space with the crew. Charlene works regularly with Karen Walker, a coach in the Beginning Teacher Support Network.

Public School Partnership
APPALACHIAN STATE UNIVERSITY



[Click here for an article on Charlene Horton's class interactions with the SpaceX program, courtesy of the Ashe Post and Times.](#)

APPALACHIAN ENTREPRENEURSHIP ACADEMY, CONTINUED

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have decades of experience in the work of entrepreneurship education, particularly in the area of P-12 education. EntreEd, a founding partner in National Entrepreneurship Week, created the America's Entrepreneurial Schools national designation for K-12 programming and was a developer of National Standards for Entrepreneurship Education. Partner STEMWest, located in Hickory, collaborates with regional educational and industry partners regularly through a variety of projects. Director Carol Moore says about the Entrepreneurship Academy, "I am looking forward



to the partnership with ASU and EntreEd to provide a unique, exciting opportunity for high school students across Appalachia to engage with businesses and entrepreneurs from their areas. This will be a once in a lifetime opportunity to freely brainstorm and create ways to meet needs and solve problems in their local communities! The first cohort will be breaking ground to scale programs in the future."

The inaugural cohort of participants will arrive in Boone in July for their two-week experience, and partners plan to continue the program annually. The Appalachian Entrepreneurship Academy is funded by a \$261,000 grant from the Appalachian Regional Commission.

SUMMER PROFESSIONAL DEVELOPMENT OPPORTUNITIES

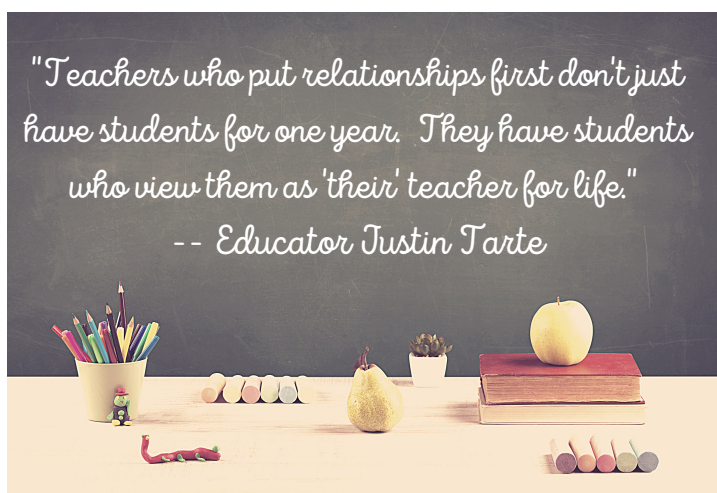
Summer 2022 offers a number of professional development opportunities sponsored by Appalachian State University. Among the offerings this year are the following STEM choices:

MELT Summer Institutes: The MELT program returns this summer with a full slate of workshop choices, including ones that are course-specific, focused on technology, or geared towards specific student audiences. For more information, visit melt.appstate.edu.

CS4All: The Department of Computer Science, with funding from the National Science Foundation, is training educators to teach the AP Computer Science course in this project that provides all expenses and a stipend for attendance. For more information, [visit this link at CS](#).

IDEA-CON: For the last two years, the MSEC has co-sponsored IDEA-CON, an online conference aimed at sharing ideas related to teaching. The conference returns this summer with details to be shared soon. Keep an eye on the MSEC website for details.

MSEC PD: The MSEC will provide a roster of professional development, some online and others in hybrid fashion. Details will appear on the msec.appstate.edu website later in March but expected topics include elementary literacy and science, STEM leadership, and trauma-informed teaching for today's student.



SAVE THE DATE!

The STEAM Expo returns to the AppState campus on April 28. Want to get involved?

To host an interactive booth at the Convocation Center, [CLICK HERE](#).

To propose an in-person demonstration for a group, [CLICK HERE](#).

Additional information to register a school group is available at [THIS LINK](#).



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STEM RESOURCES

MENTIONED IN THIS NEWSLETTER

Many resources have been developed for educators related to the National Geographic and Rolex Perpetual Planet Everest Expedition. Learn more about the expedition and the researchers or introduce concepts of alpine ecosystems, climate change, and scientific exploration and research.



For more information about the expedition, [visit this NatGeo site](#), or learn more [at this link](#).



How do App State students participate in climate change research? [Learn more in this video](#).



The EPA provides many resources on climate change for teachers. [Learn more at this link](#).

RELATED CONTENT

Related to the work of Dr. Baker Perry and the National Geographic expedition is the work of faculty in the Department of Geological and Environmental Sciences (GES). We frequently feature outreach work by Marta Toran GES in the MSEC newsletter, but you may also be interested in learning more about outreach in this area.



Watch Dr. Scott Marshall teach outdoors at the Greenway [in this clip](#).



For information on resources provided by GES, [visit this link](#).

National Geographic hosts a wealth of resources for educators, including its Resource Library. The collection is searchable, and with a sign in, teachers can save and organize media that they'd like to use in the classroom or otherwise reference later.



To view materials in the Nat Geo resource library, [visit this link](#).



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