
VIRGINIA TECH



SCIENCE FESTIVAL

November 11, 2023

The Virginia Tech Science Festival is a Saturday celebration of science as a way of knowing. Held since 2014, this expo-style, family-friendly event reaches 4,000-6,000 visitors, including families, school field trips, and Virginia Tech students. Festival guests participate in hands-on activities, see engaging demonstrations, and talk one-on-one with practicing scientists at about 60 different exhibits. Based on the idea that “science is bigger than you think,” the festival features a range of disciplines that use data to draw conclusions.

Science is life, process, safety, robotics, the earth, and well-being. Science is on the road and in the arts. The festival is a collaboration across most of the colleges and research institutes on campus, as well as many community members. Supported by the College Access Collaborative, the festival budget funds buses for school field trips from area schools, as well as charter buses from three College Access regions in the state.

Special Thanks to our 2023 Sponsors and Partners

- Virginia Tech Office of the Executive Vice President and Provost
- The Institute for Creativity, Arts, and Technology at Virginia Tech
- Moss Arts Center
- Center for Educational Networks and Impacts
- Center for Communicating Science
- College Access Collaborative
- 4-H
- Science Museum of Western Virginia
- Virginia Tech College of Science
- Virginia Tech Department of Mechanical Engineering
- Technology-Enhanced Learning and Online Strategies (TLOS)
- Virginia Tech Center for Autism Research

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5S & the Art of Assembly

Madison Harmon, Victoria Pagliaro, Micki Ross, Katie Whittemore, Sophia Margarella, Natalie Kennedy, Hannah Koehler, Samuel Loeffler, Michael Dashiell, Ruwaa Abu-Ageel, Ajit Gopal, Kathryn Sloan, Joseph Campione, Jillian Tran, Makayla Wonpat, Alex Noll, Joey Andruzzi, Tanya Bhargava, Hannah Mihalik, Mollie McKee, Alpha Pi Mu

Come learn about industrial engineering, where math, science, and engineering principles all come together to make processes better. Visitors will be able to learn about the innovations and aspects of assembly lines by participating in their own Lego assembly line. Additionally, visitors will get the chance to learn about 5S, a key component of Lean SixSigma, through a race to find the ingredients needed to make cookies.



Art Adventures: Food Magic, Turning Food Waste into Colors

Yoon Jung Choi, Farida Hanna, Avery Gendell, Hiromi Okumura, Ayush Aggarwal, Camille D'Amico; Rory Hartsoe; Catalina Fernandez, Max Hite, Frannie Polacheck, Amy Pa, Emma Burnett. Virginia Tech College of Architecture Arts and Design

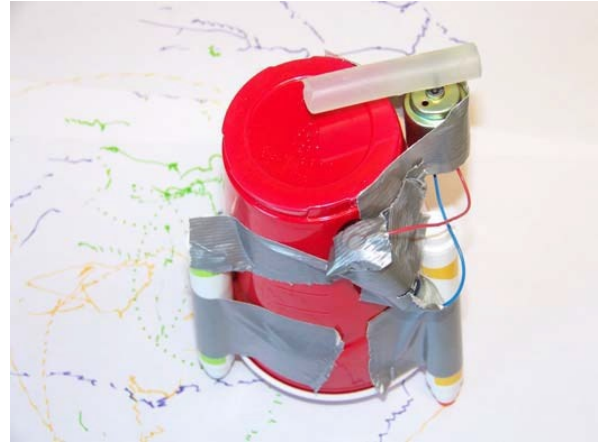


At our booth, discover the magic of turning unwanted fruits and veggies into vibrant natural paints. We'll show you how this transformation happens and give you a chance to make your own paint and artwork. Dive into hands-on fun and paint with these non-toxic colors and see the difference natural paints offer. It's not just art, but also a lesson about reusing and valuing what we usually throw away. Join us, get creative, and take a step towards a greener future while having a blast!

Art Bot

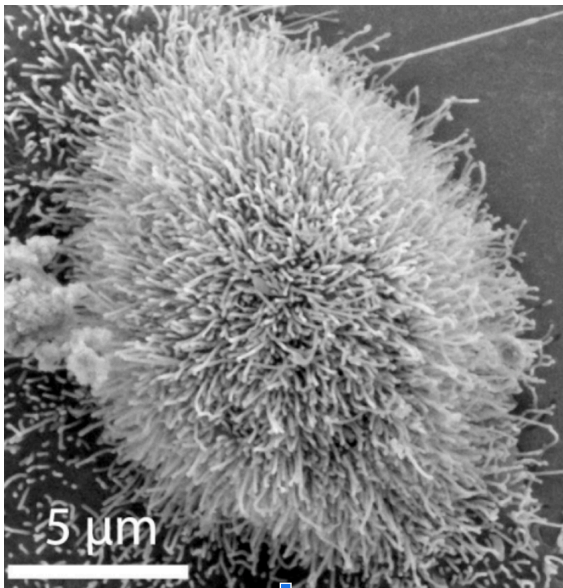
Allie Canino, Ty Christian, Madison Morales, Alice Reid, Sophia Kelly, Shelby Bellows, Dulaney Hudgins, Marisa Mazari, Emery Samuels, Tete Eteh-Benissan, Deija Hawkins, Katie Wines, Abby Lessy, Evelyn Nelson-Pennebaker, Ashley Hunt, Grey Morgan, Katy Schurtz, Madison Combs, Franklin He, Orion Living Learning Community, Fralin Life Sciences Institute

Kids will create an Art Bot and modify it to their artistic design.



Behind Density Lines: An Embodied Scanning Electron Microscopy Game

Tanner Upthegrove, Monet Roberts, Yinlin Chen, John Siegel, Luke DiGiovanna, Anthony Nguyen, Alex Lin, University Libraries, Department of Biomedical Engineering and Mechanics



Scanning Electron Microscopes can show us what is happening on an incredibly small scale. Scientists are still learning how to use Machine Learning and other new technologies to identify and quantify what is in these images. This exhibit empowers anyone to be a scientist by playing a drawing game to quantify membrane protrusions on Mucin-1 overexpressing non-tumorigenic breast cells. Versions of the game will be available on tablets, as well embodied by your movements in the Cube.

Build and Program a Lego Robot with the Red Beard Pandas

Henry Bass, Ethan Bass, Lisa Bass, Chase Borkowski, Jason McIrvine, Lilly Withers, Gabe Adams, Gavin Adams, Garrett Adams, Hannah Stoddard, Joshua Stoddard, Ahmet Dogan, Truxton Young, Vesper McAllister, Clark Brendan,
Red Beard Pandas Robot Team 4924, New River Robotics Association

Children are invited to learn about robots through Lego. Our 6th-12th grade competition robot team will guide children through some Lego building, and simple programming to accomplish tasks. For pre-K, we will have our Lego play pit!



Building Steel Bridges

Rebecca Schell, Shannon Hodul, Morgan Douglass, Evan Marshall, Serafina Fox,
Virginia Tech Steel Bridge Design Team



Building Steel Bridges will provide the opportunity for attendees to learn about the Virginia Tech Steel Bridge Design Team. It will be explained how the team works towards producing a 1/10 steel bridge for competition. We will be bringing our bridge from last year's competition (the team placed 4th at this nationals competition!) and people will be able to ask questions and learn more about the organization and bridge design overall.

Carving Out Creativity: Your Brain Activity while Making Art

Hiromi Okumura, Tanner Upthegrove, Lisa McNair, Linda Correll, Shriya Panta, Julia Basso, Zach Vincent, Electrical and Computer Engineering, Human Nutrition Foods and Exercise, School of Neuroscience, Health Behaviors Research, Engineering Education, CENI, ICAT, School of Visual Arts

Engineers, neuroscientists, and artists experiment with data from brain activity, audio and video as stone carvers create sculptures. Next step? Composing the data in immersive experiences for sharing art across physical distances. Funded by VT ICAT+Innovation Campus SEAD grant.



Center for Educational Networks and Impacts: Evaluation Services

Ashley Costello, Center for Educational Networks and Impacts



CENI is one of ICAT's centers, specializing in making connections across educational organizations to bring Virginia Tech's expertise to the community and the community to Virginia Tech. CENI offers evaluation services for educational programs. We specialize in playful evaluation, moving beyond the pre-test/post-test worksheet model. Engage with building blocks, stickers, and reflective questions to see how data collection can be unobtrusive and integrated into learning experiences.

Colorful Science: Exploring Sensation and Perception

Katherine Adams, Annie Donahue, Maya Jaffe, Lilly Messner, Lauren Klubertanz,
Elizabeth Kline, Katalina Cuevas, Virginia Tech Psychology

Have you ever wanted to learn about the science behind the way that your brain experiences the world around you? Visitors at our booth will be given a sweet treat and tasked with trying to solve a puzzle using their senses of sight, smell, touch, and taste.



Conversational AI and Social Robots for Storytelling

Shuqi Yu, Ilan Litvak, Alia Konold, Mahmut Sami Gurdal, Maegan Reinhardt, Koeun Choi,
Taylor Tuck, Alexis Whitfield, Jisun Kim, Rachel Thompson, Isabel Valdivia, Yeaji Lee,
Cognitive Developmental Science (CoDeS) Lab, Mind Music Machine (tri-M) Lab,
Echolab, VT Learning & Development Lab

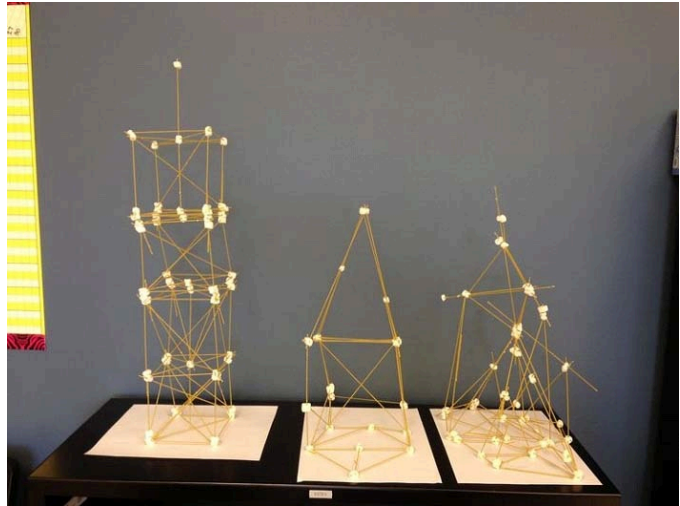


We will demonstrate how conversational AI and social robots can be used to promote young children's learning. We will invite attendees to interact with our conversational AI agents deployed on smart speakers, computers, and tablets as well as social robots. These technological tools will read a children's storybook and pose questions based on a pre-programmed system designed by our team. The audience will have the opportunity to explore our head-mounted eye trackers and wearable devices as we walk them through how these methodological tools are used to study child cognition.

Explore Statics through Spaghetti and Marshmallow Towers

Aryaman Vala, Lukas Pelton, Indulekha Sanil, Helen Brown, Kapil Kulkarni, Bella Guereca, Lana Asaad, Sophie Atkisson

This activity is designed to illuminate concepts in engineering, physics, structural integrity, statics, and structures. K-12 students will use raw spaghetti noodles and marshmallows to build their towers as high as they can. At the end, we'll provide explanations on the underlying physics of their structures.



Exploring Neuroscience and Our Brains

Daniela Pereira, Britney Tran, Peyton Herndon, Claire Wildermann, Rainah Fleming, Samanvitha Dammalapati, Abby Cheng, Deborah Thomas, Edmond Sion, Julianne Wood, Brain Bee at Virginia Tech

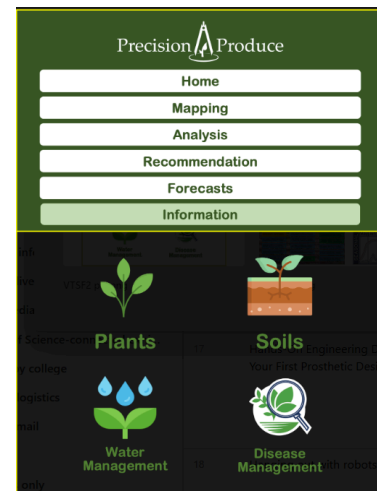


Did you know that the human brain is made of 100 billion special cells that can generate enough electricity to power a light bulb? Our brains determine how we experience the world, and we have amazing ways to study the special cells of the brain and nervous system. Join us to learn all about brain cells, and see them under a microscope, view a real sheep brain, and even try to trick your brain with prism goggles.

Farming, Drones, & Data

Ashley Posthumous; Kate Klemic; Brian Mayer, Madeline Baldwin; Connor Walsh Egan; Esther Park; Brandon Herndon; Lisa McNair; Chinecherem Dimobi; Kaitlyn Konicki; Virginia Tech Applied Research Center; Center for Advanced Innovation in Agriculture; Center for Economic and Community Engagement; Center for Educational Networks and Impacts; Center for Geospatial Information Technology; Sanghani Center for Artificial Intelligence & Data Analysis; School of Plant and Environmental Science

Plants grow better when they have the right amount of water and when they are protected from pests. That's easy with a house plant or even a small garden. But what do you do when you have acres and acres of plants? And how do changing weather conditions change that? Using technology like drones and data analysis tools, we share how we're learning ways that farmers can get the most out of their crops.



Hands-On Engineering Design - Build Your First Prosthetic Design

Rahul Rengan Ramakrishnan, Walter Dickey, Paolo Hermoso, Ashley Taylor, Sam Northrup, Ebony Shields, Julia Hocker, Brooke Struyk, Victoria Conn, Niranjana Aradhey, Christopher Rosend, e-NABLE at Virginia Tech

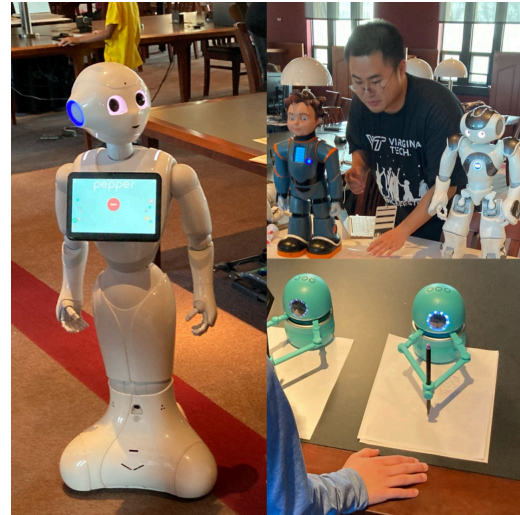


We will have some of our designs and prototypes to show off for the attendees. Our members come from all different skill backgrounds and develop the skills to make our devices. We hope to make a point that it doesn't matter where you start, you can get to your goal with enough effort.

Hanging Out with Robots

Jennifer Mitchell, Jiayuan Dong, Myounghoon Jeon, Isabella Villarente, Joon Hyun Shim, Madison Harmon, Gayoung Ban, Jacqueline Bruen, Mungyeong Choe, Hayoun Moon, Abhraneil Dam, Manhua Wang, Akinwale Okunola, Abhraneil Dam, Yeana Bond, Jacob Garza, Mind Music Machine Lab at Virginia Tech

Social robots benefit many aspects of human life such as home care, education, and safety. To promote STEAM (STEM + Art) education, we would like to present different types of social robots to attendees. Attendees will have a chance to interact with those interesting robots. There will be art components involved such as dancing, music, and drawing. Please come join us at the VT Science Festival! If you are interested in knowing more robot research projects that we are working on, our researchers will be there to tell you more about our research experience.



Launch Rockets with a Student-Led High-Powered Rocketry Design Team

Vanessa Bushell, Amelie Lutz, Dali Gindel, Nancy Pandey, Kemper Brown, Mustafa Khan, Rocketry at Virginia Tech



With Rocketry at Virginia Tech, attendees will get to see our 10-foot competition rocket, Whipsnake, which was launched to an altitude of almost 10,000 feet in 2018. Attendees can understand the inner workings of rocket design by disassembling our model rockets complete with a parachute inside. Our stomp rocket and slingshot rocket toys will be available to educate children about launch forces and trajectory. We are thrilled to teach you more about high-powered rocketry and this year's competition rocket.

Learn About Herps (Reptiles and Amphibians)

Jeff Anderson, Collin Barnett, Josh Taylor, Josh Pulliam, Akhila Wills, Yohan Sequeira, Isha Devgan, Blacksburg High School Herpetology Club, Socha Lab at Virginia Tech

Come to our booth to learn about herps (reptiles and amphibians), including the unique flying snakes that glide through the air. We will have live animals on hand for you to interact with. Sponsored by the Blacksburg High School Herpetology Club and the Socha Lab at Virginia Tech.



Learning by Googing: The Oobleck Experience!

Hope Foss, Madeleine Morris, Dia Ferrufino, Makeda Solomon, Pranika Vardhan, Galipatia

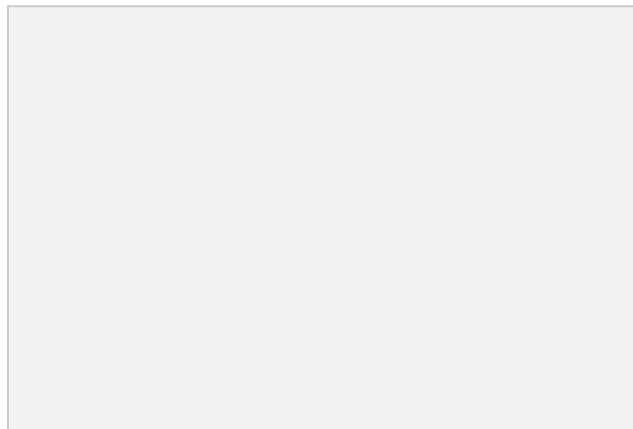


Is it a solid, a liquid, come see for yourself! Witness the fascinating physics behind a funky non-Newtonian fluid. This activity is non-toxic but can get slightly messy, so be ready to roll your sleeves up.

Light Wall Interactive Exhibit

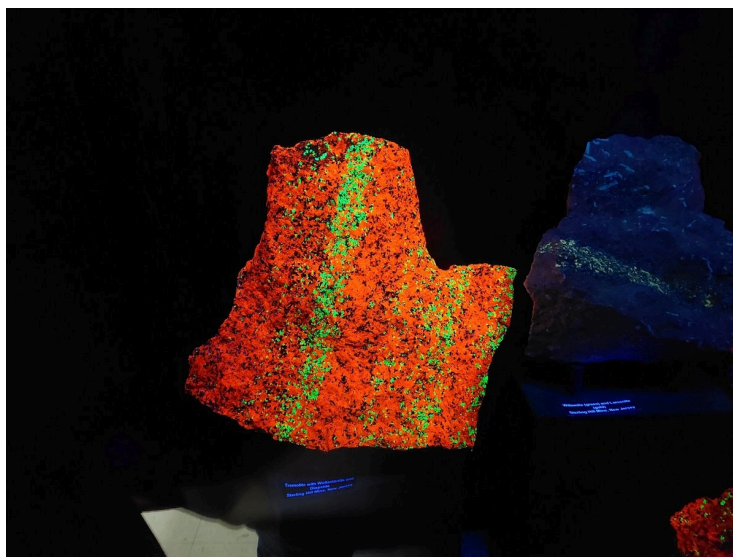
Josh Taibi, Virginia Tech University Libraries

In this exhibit piece we will see how your movements are translated into colorful computer generated particles projected onto a wall. Your reactions and inputs will help shape how this project evolves as it is a student developed project still under development.



Magic Minerals

Mariah Green, Rose McGroarty, Adam Laxton, Chip Baker, Julio Montenegro, Museum of Geosciences

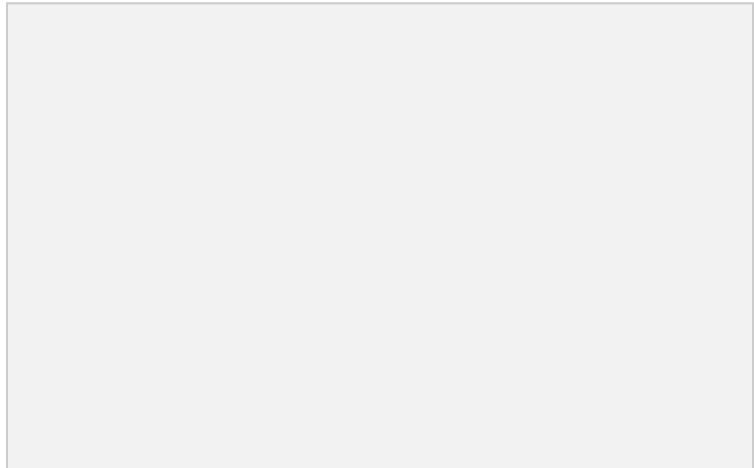


This hands-on activity allows visitors of all ages to experience various fun, unique, exciting, and unexpected mineral properties such as double refraction, fluorescence, and more.

Marble Impact Coaster

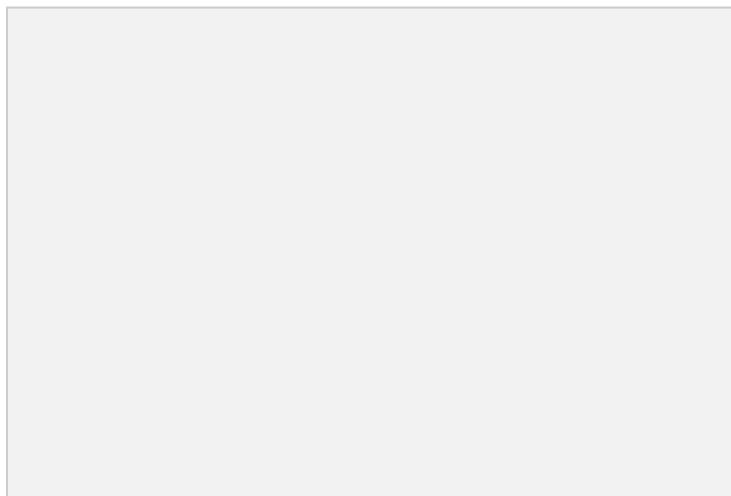
Ryan Zhao, Pierce Tan, Bang Truong,
Blacksburg High School Science National Honor Society

Observers will interact with a marble roller coaster, placing marbles in it and watching as it descends through the coaster. Marbles of different masses and sizes will be presented to release at various heights. This would demonstrate elastic collision and inelastic collision by showing how the weight's affect the result of the demonstration, and the impact of height on the gravitational potential energy to younger audiences.



Memory Madness Game

Katherine Adams, Landon Duval, Daisy Hernandez-Ramos, Jesus Santos, Karina Daniel,
Hannah Whitlock, Sydney Wuhrer, Virginia Tech Psychology



At our exhibit, you'll have the opportunity to show off your incredible memory skills by completing some hands-on activities, including a fun flip-card memory game.

MEPS Materials Science in the Real World

Joanna Aguilar, Charles Mack, Materials Engineering Professional Society

Materials Science and Engineering studies improve existing materials and help develop new ones to meet the demands of a fast-changing, technology-driven world. Starting with simple ideas such as 'bridges must hold a lot of weight', and expanding to 'cars must bend in a certain way to protect those inside in the event of an accident'. We have some in person demos to bring this to life.



Microbes: Friends or Foes?

Shreya Rajkumar, Savanah Fox, Ga'Daisyia Gupton, Vivian Nguyen, Sydney Murphy, Abdullahi Jamiu, Maye Alyadinov, Deniz Kesoglu, Tori Shimoazono, Alexandra Pinkham, Gayatri Vanamala, Astin Naveen John, Microbiology Club at Virginia Tech



Microbes impact almost every aspect of your life in mostly beneficial, but also potentially harmful ways. Learn about the microbial world around, on and within you and how it impacts you on a daily basis. Participants will use microscopes, observe live microbes on Petri dishes, and learn the importance of proper hand washing.

Monitoring Volcanoes with High-Precision GNSS/GPS

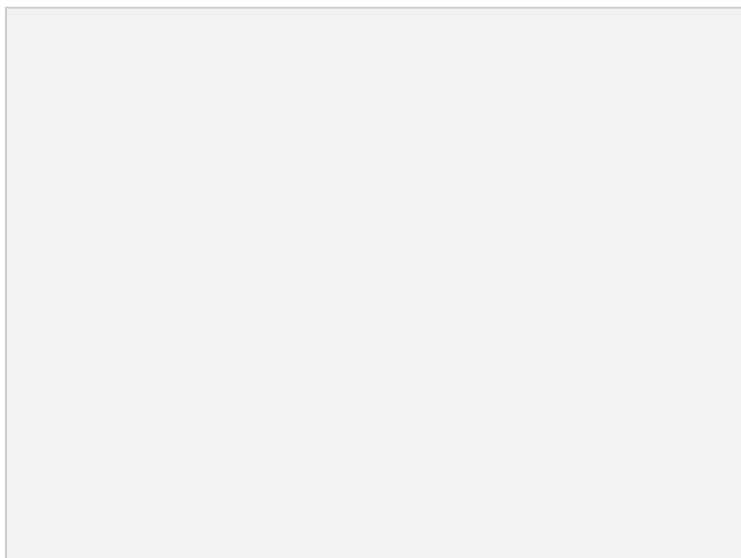
Dr. Sarah Stamps, Justin Dean, Jasmine Floyd, Karen Williams, Ruben Ramirez, Geodesy and Tectonophysics Laboratory, Department of Geosciences

Members of the Geodesy and Tectonophysics Laboratory will show how we use real-time GNSS/GPS technology to monitor an active volcano in Tanzania and provide a demonstration of how volcanic magma reservoirs behave when getting close to an eruption.



NanoEarth: What is Nano and What Does it Have to Do with the Earth and the Environment?

Sylvianne Velasquez, Lislely Gomes, Charis Horn, Bipin Lade, Madeline White, Marcus Misztal, NanoEarth (National Center for Earth and Environmental Nanotechnology Infrastructure)



Nanotechnology is everywhere: in your smartphone, in your food, and in nature. But what can nanotechnology do for the Earth? And what can it mean for the environment? We will explore what gives nanotechnology their "superpowers" and how they behave in the environment as well as how we can leverage them to tackle challenges in the environment.

Optical Illusions: See It to Believe It

Katherine Adams, Tommy Carman, Shreef Kebaish, Michael Rafferty, Lauren Pendergraph, Bianca Mellard, Virginia Tech Psychology

Ever been tricked by your own eyes? Dive into the scientific world of optical illusions at our booth. You will be able to participate in hands-on games that challenge your views, from tables that seem to morph in shape, to circles that trick you about their size, to lines that appear to stretch. Additionally, talk about curious images like a dress that changes color and more! At our booth you can discover the science behind why seeing isn't always believing



Performing Common Tasks while Simulating Loss of Motor Control

Aryaman Vala, Antonio Romero, Katherine Henn, Elizabeth Schneider, Shruthika Suddala, James Tinnemeyer, Joshua Essandoh, Nikhitha Khasnavis, Archimedes, Team JUV0



Learn how the loss of motor control changes how well you can do things like cut out paper, stack cups, and make things from Playdough.

Physics is Fun

Henry Hilgendorf, Nate Poulton, Alexander Sarver, Gregory Durkin, Fir Takacs, Mason Wright, Gregory Durkin, Jacob Garza, Virginia Tech Physics Department



Physics is Fun has many exciting and electrifying hands on demonstrations of physics concepts. Crowd participation is encouraged! Both young and old will be able to enjoy learning everything from what happens to marshmallows in space, to how electric generators work.

Play Catch with an FRC Robot Built by High School Students

Stoll Karen, Brandon Landreth, Kenneth Shirah, Charles MacKenzie, Reece Masri, Arnit Garg, Brennen Dovie, Honzik Schenk, Gideon Colliver,
FRC Team 401 Copperhead Robotics Montgomery County Public Schools

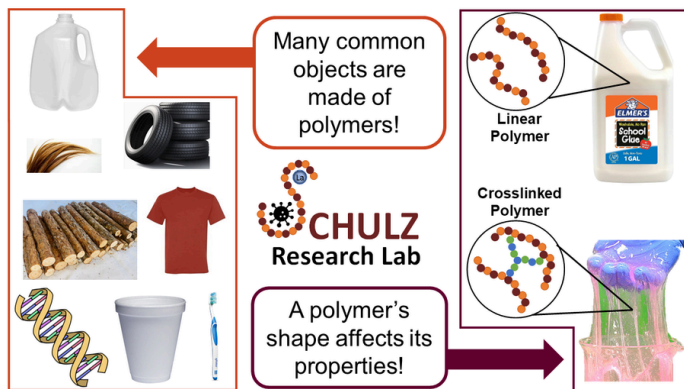


Interactive exhibit with a 125 lb robot that will play catch with visitors using a foam soccer ball. Team 401 will bring two of our competition robots, which were built by MCPS high school students. One robot specializes in shooting smaller foam dodgeballs and is very interactive with small children. The other robot specializes in picking up inflatable purple cubes.

Polymers: The Science All Around You

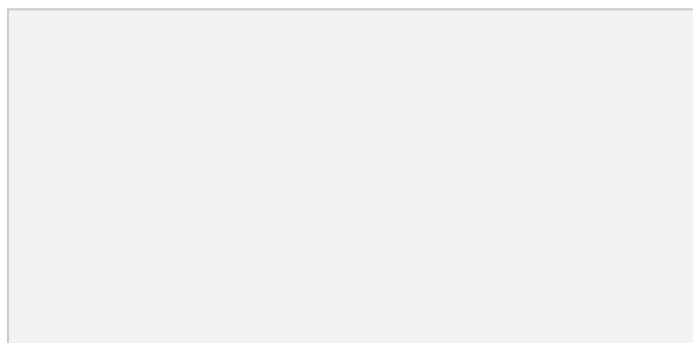
Connor Gallagher, Zhen Shi, Rachel Bianculli, Suzie Muller, The Schulz Research Group

Polymers are really large molecules that make up many common objects like plastics, fabrics, wood, and hair. Join the Schulz Research Lab in learning about polymers through some common examples. Participants will get to build their own model polymer using paperclips or pipe cleaners. The shape and structure of a polymer can have a big impact on its properties and uses. Participants will explore this concept by performing a crosslinking reaction on a common polymer to turn it into slime.



Programming a Martian Laser-Bot Rover

Thomas "Tweeks" Weeks, Flex Vaughn, Warren Lucero, Jennifer Goyne, Lucinda Goyne, Virginia Tech Div of IT



We have discovered a war-driven alien race on Mars that is preparing to invade and attack Earth. With your help we have sent our best remotely programmed laser-bot to Mars to take out their alien ships before they can launch their attack on Earth, but we need to hurry. The distance is too far to remotely control the bot, so YOU need to program your laser-bot rover with precise movements to remotely take out the alien ships before they can launch their attack on Earth!

Prototyping Studios: Where Ideas Meet Reality

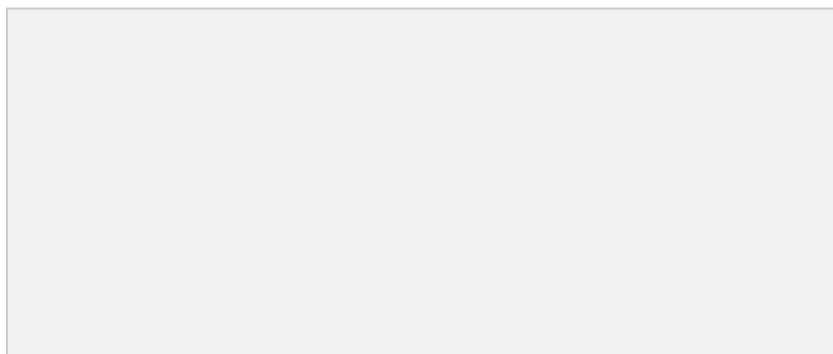
Virginia Tech University Libraries



Come see the University Libraries' maker space and all the cool tools, projects, and people that make it happen. While you're here, feel free to make something to take with you.

Randolph College Science Festival

Peter Sheldon, Luke Chapman, Shauna Shepard, James Royall, Greg Wietrzykowski, Gaby Velasquez, Seneca Drennan, Alex Archinal, Milo Phillips, Trish Cerulli, Shauna Shepard, Randolph College

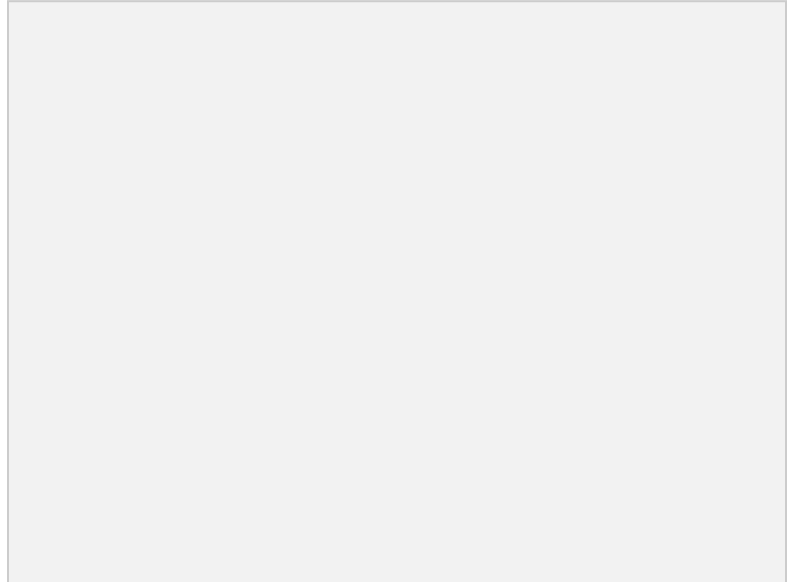


Learn about the Randolph College Science Festival and take part in a hands-on experience.

Rush Hour in Real Life

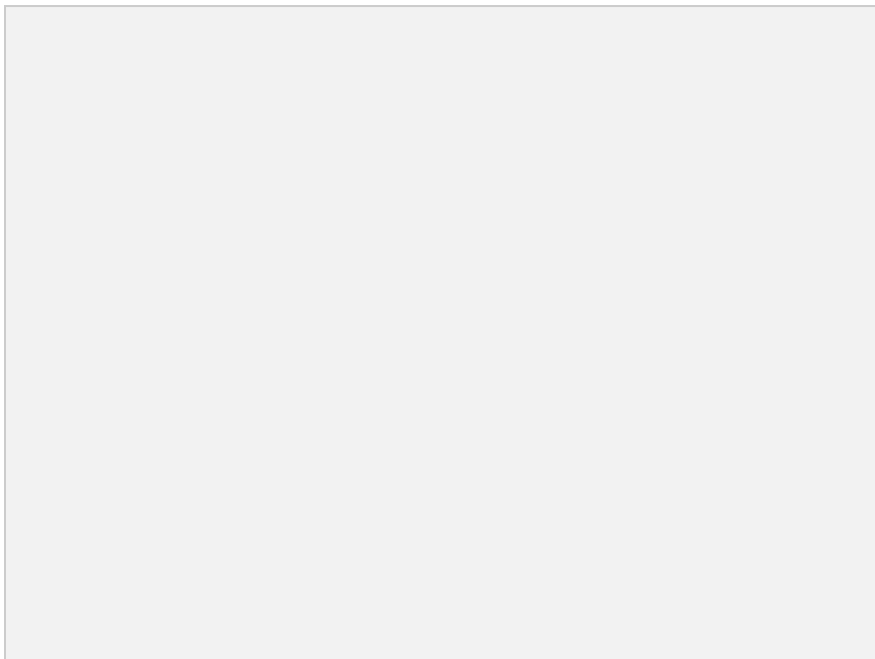
Namita Shashidhar, Noah Provenzano, Virginia Tech's Computer Science Department

Check out the board game "Rush Hour" in person and how a computer can render game play.



SAFE Break Zone

Virginia Tech Autism Clinic and Center for Autism Research



The SAFE (Supporting Autism Friendly Environments) space is a break zone for any of our friends who might need a break from the busy, sensory-friendly break for the Science Festival.

Same Skeleton Different Adaptation

Mark Nohomovich, Henry Ayers, Noah Crook, Simba Srivastava,
VT Geobiology and Paleobiology

See 3-D printed fossils and see how they compare with organisms that are alive today.



Science Museum of Western Virginia

Chris Savage



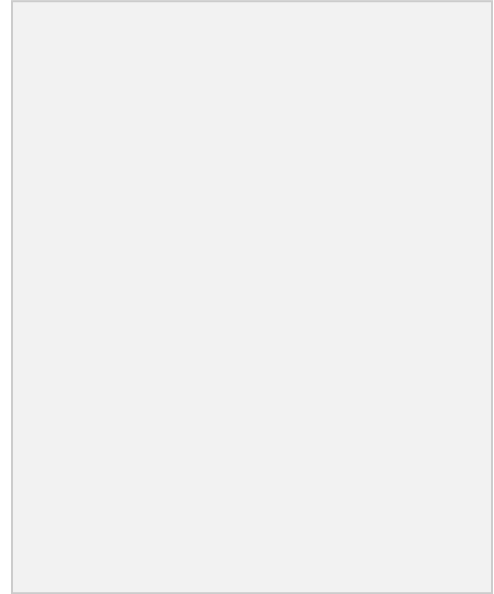
SCIENCE MUSEUM
of WESTERN VIRGINIA

Learn about programs and exhibits at the Science Museum of Western Virginia in Roanoke.

She Learns, She Leads, She Creates Her Lab

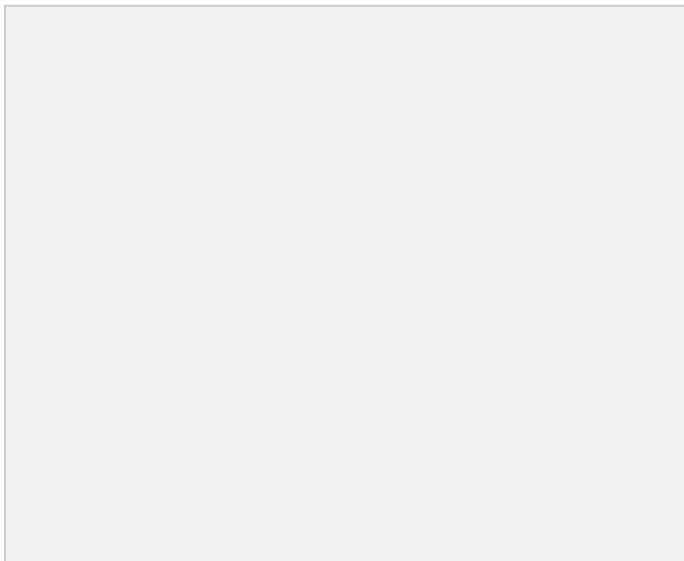
Trinity Perkins, Kimbra Young, Edom Eshete, The Lab

This activity will expose girls to science, technology, engineering, math, and STEM's unique impact on the cosmetic industry. Join us for a hands-on learning experience that uses cosmetic chemistry concepts allowing youth the ability to create some of their favorite cosmetic items such as lip gloss, body scrubs, lotion, and more.



Snakes, Bats, and Fungus - Oh My

Nichole Laggan, Gaelle Blanvillain, Morgan Stanley, Natalie Kahn, Josh Fife, Mercedes Martinez, Bailey Hudgens, Disease Ecology and Conservation Lab

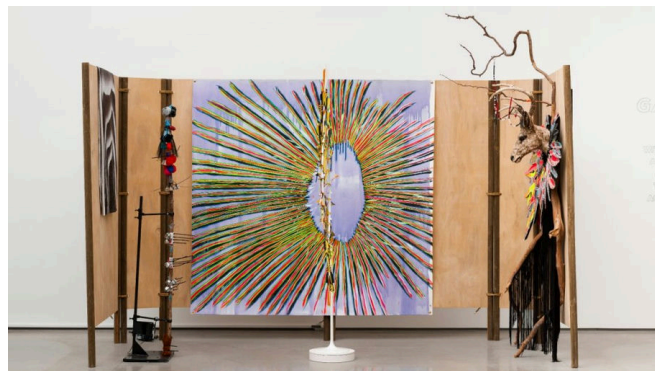


Stop by to learn about how wild animals can get sick too. We will be making snake and bat crafts and will teach you how we can test if wild animals are sick with fungi. Our booth will include these crafts (that you can hang in your house), demonstrations from researchers about how we study bats and snakes, and a live snake.

Spirit is Alive, Magic is Afoot by Laurie Steelink

Virginia Tech Moss Arts Center, Jennifer Huang

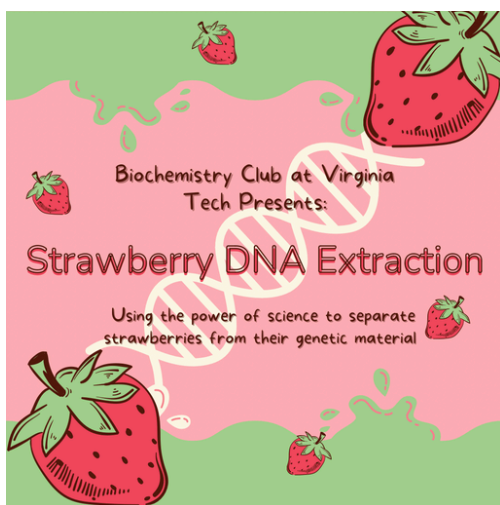
Multidisciplinary artist Laurie Steelink is a citizen of the Akimel O'otham Nation from the Gila River Indian Community in Arizona. Exploring connections to her Native American roots, Steelink creates assemblages of found objects and reassembled paintings to question authenticity and consider spirituality. This exhibition features mixed-media assemblages and sculptures, photographs, installations, and a video by Steelink, alongside traditional weavings and beadwork by Victoria Ferguson,



director/docent for the Solitude-Fraction site in Virginia Tech's Office for Inclusion and Diversity. Spirit Is Alive, Magic Is Afoot encapsulates Steelink's approach to life and art. It's a mantra that signifies the energy fueling her artistic expression and embracing the magic of the moment. Taken from Buffy Sainte-Marie's song, God Is Alive, Magic Is Afoot, with lyrics from Leonard Cohen's prose poem of the same name, the show title pays homage to Sainte-Marie, a Piapot Cree Nation singer-songwriter and activist whose force and creativity inspire Steelink's practice, mantra, and understanding of the world. Using her creativity to reconnect with and to reference her ancestors, culture, and community, Steelink defines her work as an expression of her personal identities.

Strawberry DNA Extractions

Allison Pennington, Emma Yeager, Genesis Amaya, Kristopher Hite, Sophie Kutz, Grace Genelin, Farah Abdullah, Vy Nguyen, Claire Leitner, Kathryn "Addie" Hayes, Shajaesza Diggs, Livvy Rumsey, Renee Sarmiento, Biochemistry Club at Virginia Tech



Use the power of science to extract DNA from strawberries.

Stream Detectives: Water Quality Mysteries of Blacksburg

Katherine Pérez Rivera, Gretel Baur, Grace O'Malley, Meredith Snyder, Abigail Lewis, Donya Mohamed, Morgan Wood, Carla López Lloreda, Heather Wander, Caleigh Meehan, Virginia Tech Stream Team

Come test the water quality of different water bodies around Blacksburg and solve the mystery of where the water came from. Then see how water quality affects what bugs can live there and dig in the sand to make your own stream.



Stream Rocks: Beds Full of Sand are Uncomfortable for Stream Critters Too

Jon Czuba, Heather Wall, Justus Hargett, Sadia Afrin Khan, Dr. Czuba Research Group, Biological Systems Engineering



The size and mix of rocks on the bottom of streams creates places where different stream critters (such as stream bugs, crayfish, and fish) will choose to live or not. These critters prefer places where there are open spaces between larger rocks. If these open spaces are filled in with sand or mud, then these critters will look for a different home. This hands-on exhibit allows people of all ages to pretend their hands are stream critters and explore the differences in stream bottoms liked and disliked by stream critters in our interactive gravel and sand boxes.

The (Virtual) Solar System in the Palm of Your Hand

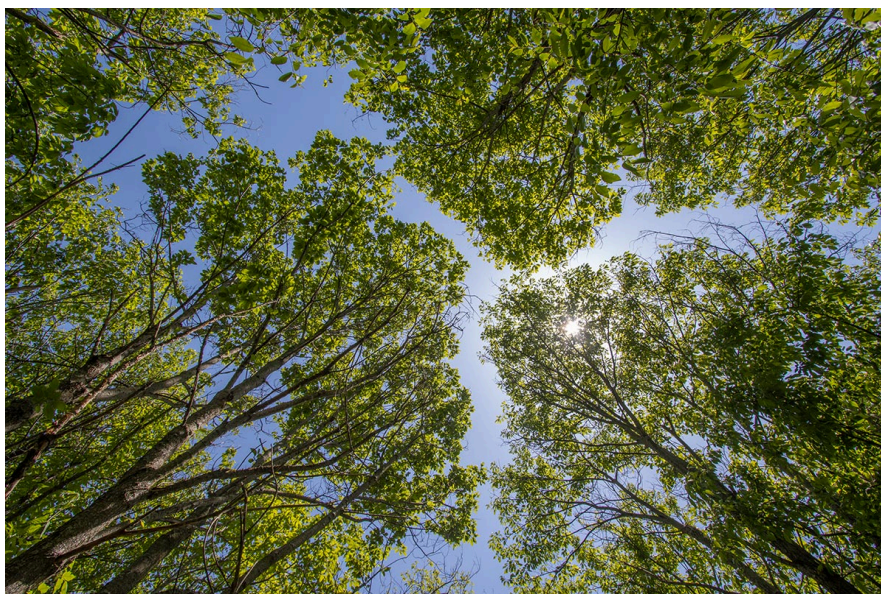
Chris Savage; Haley Mundy; Sherrie Bocock; Atlas Vernier; Sherrié Bocock; Matthew Gallagher; Science Museum of Western Virginia; Applied Research in Immersive Experiences and Simulations; Institute for Creativity, Art, and Technology



Use virtual reality to explore the solar system we call home. Investigate the scale of the solar system, how big our star really is, how tides work, and more. You can even design your own planet and see how it fares as it orbits the Sun.

The American Chestnut

Ciera Wilbur, Lauren Kerwien, The American Chestnut Foundation



Visitors to The American Chestnut Foundation exhibit will learn about the history of the American chestnut up to present day. Visitors will be encouraged to examine chestnut material such as nuts, leaves, and twigs and add a leaf to the returning American chestnut tree. Students will also receive coloring pages if they choose.

The Fast and the Curious: Which DIY Car is Best?

Megan O'Hara, Sean Lyons, Joshua Gao, Paige Nguyen, Fiona Mustard, Thiviya Karuppasamy, Jake O'Brien, Science Olympiad at Virginia Tech

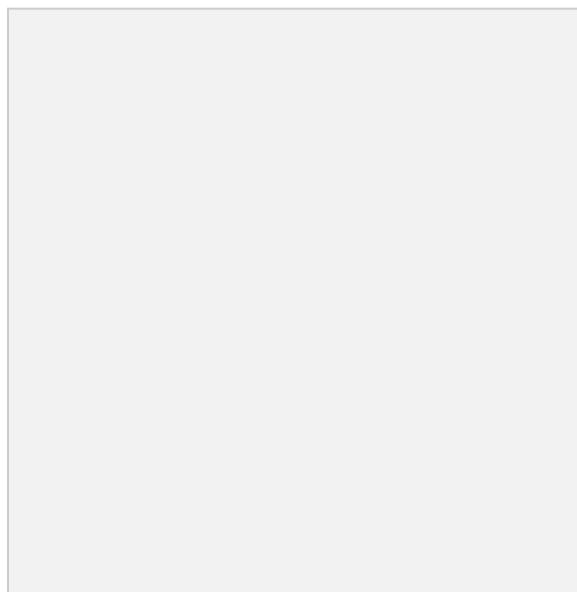
Come judge a mock Science Olympiad competition as we compete to see who built the best RUBBER BAND-POWERED CAR. Can you predict which car will win by examining the way the car was built? Then after racing, YOU decide which car is the best and declare the WINNER!



SCIENCE OLYMPIAD
AT VIRGINIA TECH

The Mathematics of How We Send Secret Messages

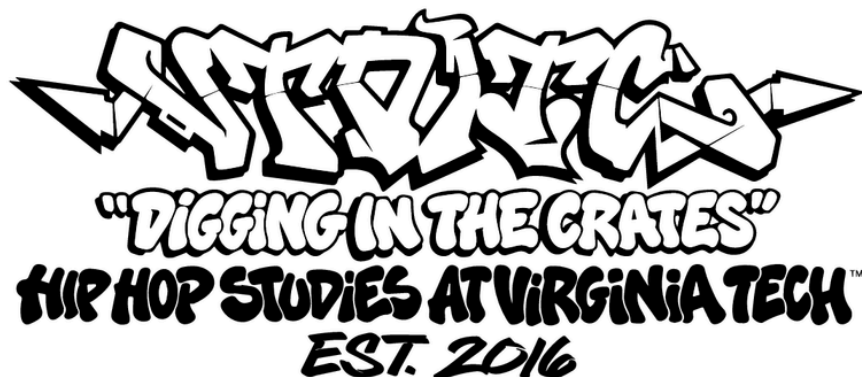
Jennifer Smucker, Julia Shapiro, Nora Heitzman-Breen, Kelli Karcher, Michael Robert, Gretchen Matthews, Giuseppe Cotardo, Association for Women in Mathematics Virginia Tech Chapter



We use secret messages all the time, sometimes without even realizing it. It's how we protect our personal information online, it's a safeguard against identity theft, and you can use it to send important messages to your friends (for their eyes only). Through this activity, students will learn how to encrypt and decrypt messages of various difficulty levels to accommodate children from kindergarten to high school ages.

The Science, Technology, Engineering, Art, & Math of Hip Hop

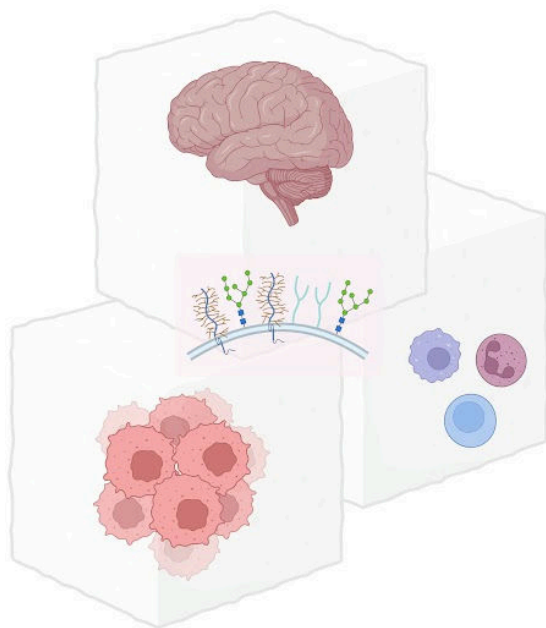
VTDITC: Hip Hop Studies at Virginia Tech



Join the VTDITC: Hip Hop Studies at Virginia Tech team as we demonstrate and explain the science, technology, engineering, art, and mathematics of the Hip Hop arts. You'll get to witness and try your hand at a variety of Hip Hop culture's traditional creative practices: djing, beat making, and maybe even playing a theremin. After we explain the science behind what we do, we'll happily answer any questions you have and provide advice on how you can start creating. We look forward to learning with you!

The Sweet Spot

Samantha Ferrao, Hailey Murphy, De Shanna Johnson, Sara Altreuter, Melody Garcia-Vega, Monet Roberts, Avery Fisher,
Department of Biomedical Engineering and Mechanics

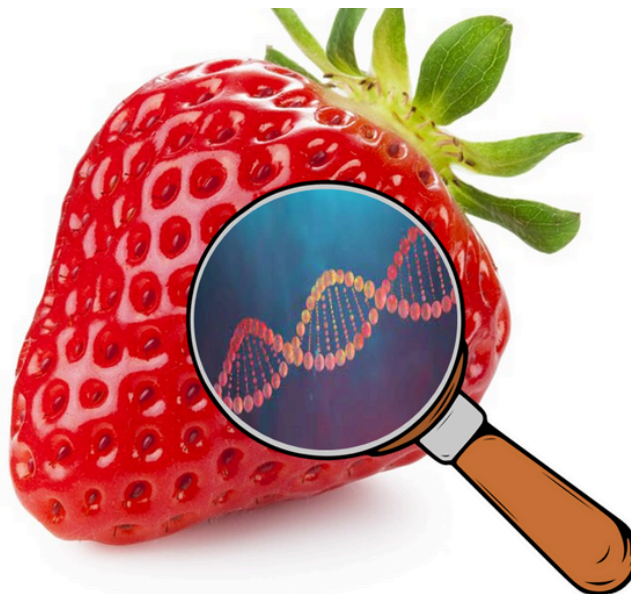


Sugars are expressed on the surface of cells and are important in how cells communicate with their fellow cell neighbors and the surrounding environment. This expression changes in different diseases which can serve as future treatment targets. This exhibit will educate participants with a series of activities including a magnetic maze representing cell movement, constructing a cell surface, and a colorful demonstration of surface detection methods.

Uncovering the Blueprint of Life: Fruit DNA Extraction

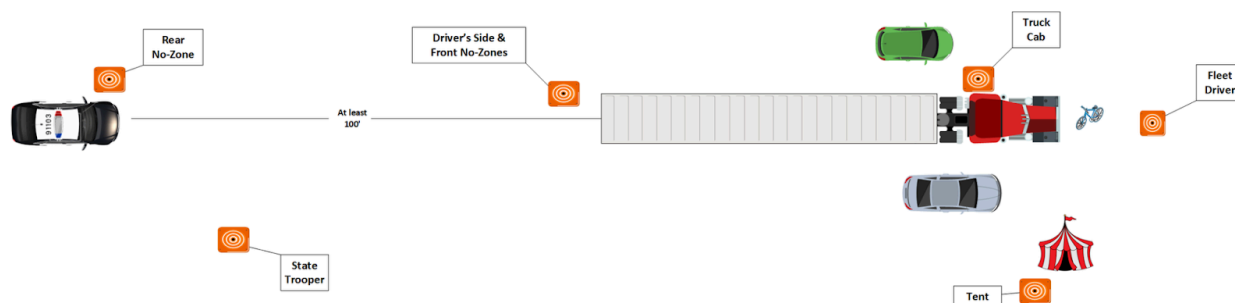
Casey Kellogg, Laura Gil Pineda, Biochemistry Graduate Student Association

Did you know that DNA is the blueprint behind all living things? This amazing molecule is in every cell and is what makes you, you and also what makes a banana, a banana. Participate in a hands-on exhibit where you extract the DNA from your favorite fruits and see the blueprint of life with your own eyes.



Using Science to Teach How to Drive Around Trucks

Virginia Tech Transportation Institute, Matt Camden, Mark Petersen, Christie Ridgeway



This is your chance to sit in the driver's seat of a tractor trailer. In this experience, participants will learn what truck drivers can and can't see when they are driving on our roads. You will learn how the Virginia Tech Transportation Institute's research led to the creation of a hand's-on learning experience for drivers.

Virtual Reality, Augmented Reality, & Smart Technology Aren't Just for Games - They Help Us Design & Build the World Around Us

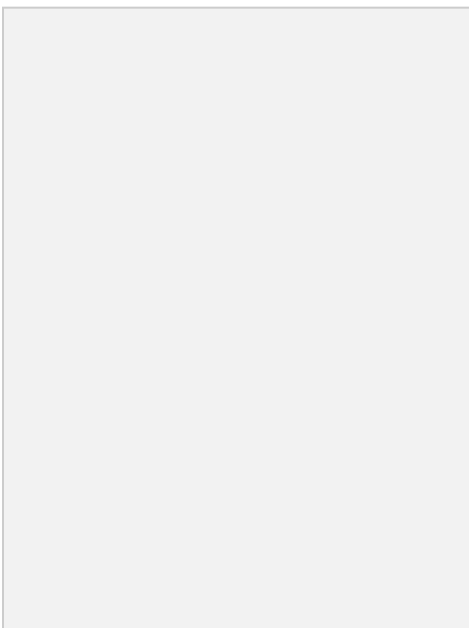
Abiola Akinniyi, Mohammad Khalid, Adedeji Afolabi, Akinwale Okunola,
Myers-Lawson School of Construction

Attendees will get a chance to try on virtual reality (VR) & augmented reality (AR) headsets that are used on construction sites to help build the things we use every day. They will also see demonstrations of wearable exoskeletons that can be worn by humans to help them be more safe on construction sites & be time-efficient as they do their jobs.



VT Helmet Lab

Barry Miller, Brianna Reilly, Virginia Tech Helmet Lab

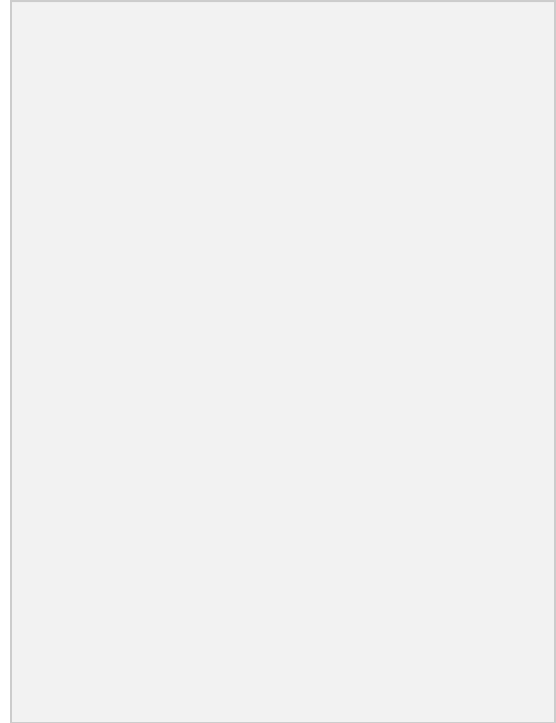


See and learn about different sport helmets and how the VT Helmet Lab helps reduce injury risk with our STAR ratings.

Water Quality - DIY Biofilters

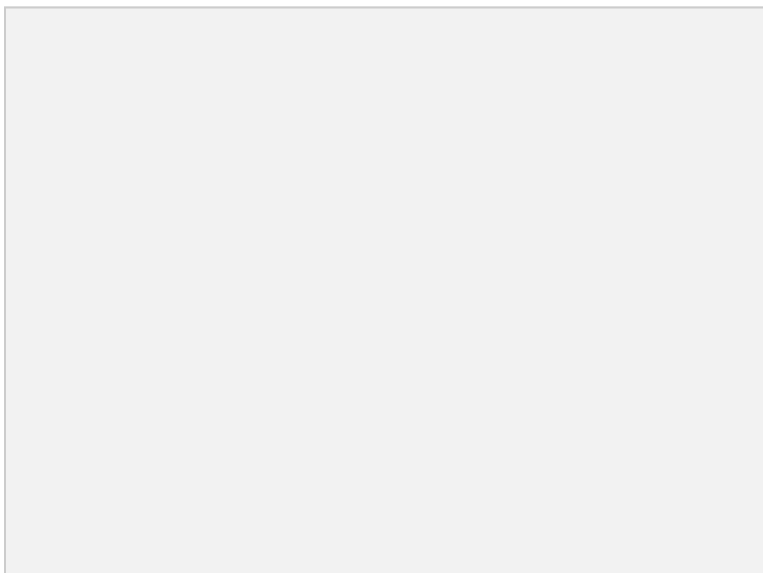
Katelyn Muldoon, Nisha Polk, Virginia Tech Site and Infrastructure Development

Learn about how Virginia Tech protects water quality and prevents stormwater pollution. Design and test your own stormwater filter at 10:30, 11:30 or 12:30 to participate in the hands-on activity.



What's the Buzz about Mosquitoes?

Joanna Reinhold, Katelyn Domke, Lan Lou, Helle Aronson, Shajaesza Diggs,
Vinauger Lab



We've all experienced the most dreaded sound of summer: the buzzing of a mosquito in your ear. They may be annoying, but there's more to mosquitoes than you might think. At our booth, you can learn about the mosquito life cycle, why they are both good and bad, how they find us, why you might get bitten more than your friends, and so much more.

What's Your Rural?

Amy Azano, Christian Heasley, Deirdre Hand, Josh Thompson, Annie Shaba,
Center for Rural Education

This experience will encourage participants to describe their own sense of rurality through artistic expression. Here, we will have a variety of art supplies for attendees to create and picture their own sense of home. Apart from creating a small piece of art, we will also have information on our summer enrichment experience and upcoming winter weekend enrichment opportunities. Come join our experience and engage in all things rural.





INSTITUTE FOR CREATIVITY, ARTS, AND TECHNOLOGY
CENTER FOR EDUCATIONAL
NETWORKS AND IMPACTS
VIRGINIA TECH.