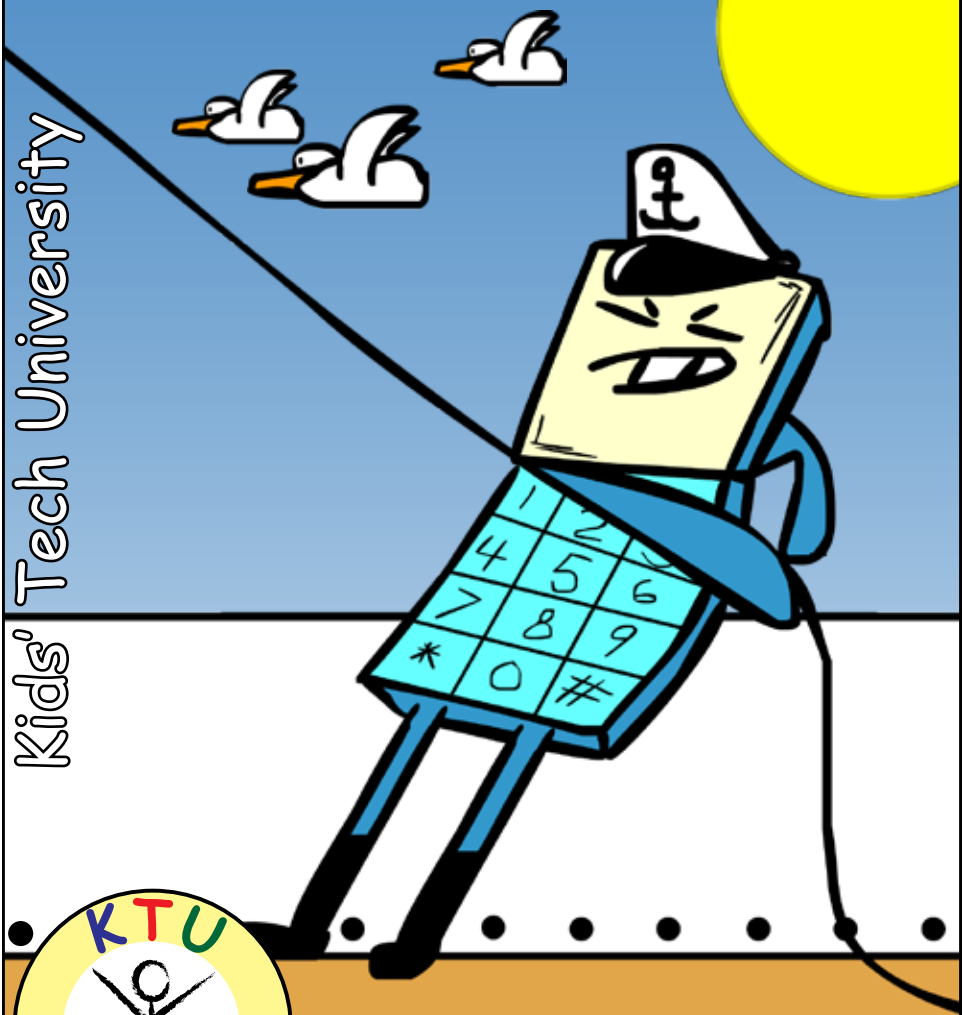
Dr. Leigh McCue-Weil
March 23, 2013

"How can my phone make my boat safer?"



Kids' Tech University

KTU Kids' Tech University

Virginia Tech
Virginia Bioinformatics Institute

Thank you to all of our supporters!

Your generous support helps to make Kids' Tech University possible!

Sponsors

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We would also like to extend our gratitude to our corporate sponsors:

Rackspace &
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Thank you for helping to make Kids' Tech University 2013 a success!

Volunteers

Our volunteers include many members from the Virginia Tech and Blacksburg community

Additional Support is always welcomed. If you would like to help us provide this exciting opportunity for children, please contact:

Dr. Kristy Collins
540-231-1389
kdivitto@vbi.vt.edu

http://kidstechuniversity.vbi.vt.edu/

About the Program

The primary goal of Kids' Tech University (KTU) is to help grow the future workforce in **science, technology, engineering,** and **mathematics** (STEM) by sparking kids' interest in these disciplines.

KTU's curriculum features three parts:

Interactive Sessions
- where children meet scientists and learn about their research

Hands-On Activities
- that give children the opportunity to learn about research projects across the VT campus and beyond

Online Virtual Labs
- which allow continued exploration of science topics at home.
- http://ktu.vbi.vt.edu/

March 23rd Agenda

9:45 AM
Parents drop off their children for the **interactive session** in McBryde Hall 100

10:30 - 11:45 AM
Kids enjoy an interactive session led by Dr. Leigh McCue-Weil titled **"How can my phone make my boat safer?"** in McBryde Hall 100

Parents are invited to view the event in a satellite location, over a live video feed, in Torgersen Hall 2150 or 3100

11:45 AM
Parents pickup their children and kids receive a Hokie Passport lunch card containing $6.00 for **lunch** at one of the specified dining halls on campus. After lunch, this card will grant them access into the exhibit area.

Please make sure your child leaves their lanyard with their volunteer.

1:30 - 3:30 PM
The children will be escorted by their parents to the **hands-on portion** of the event, being held in Cassell Coliseum on the Virginia Tech campus. There the students will enjoy the experience of interacting with various exhibits from the Virginia Tech community. Parents/guardians are responsible for being with their registered KTU child(ren) during the hands-on activities in Cassell Coliseum; **only children with their Hokie Passport lunch card will be allowed in Cassell Coliseum.**

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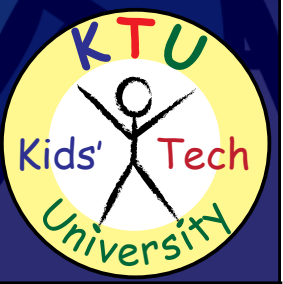

VirginiaTech

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January 18, 2013

Kids' Tech University Participants:

Welcome to Blacksburg, the Virginia Tech campus, and to Kids' Tech University!

Kids' Tech University, with interactive sessions and exciting hands-on events, is designed to create the future workforce in science, technology, engineering, and mathematics (STEM) by sparking an interest in these fields for you and your child. We are currently in our fifth year of offering the program through the coordination of the Virginia Bioinformatics Institute (VBI), Virginia 4-H, and the Roanoke-Blacksburg Technology Council (RBTC).

Virginia Tech has a strong commitment to connecting national prominence in research and discovery to advance quality STEM programs across the Commonwealth. Kids' Tech University is just one example of this commitment.

As Virginia Tech's Associate Vice President for Engagement, I am delighted to welcome you to such a successful project and hope that you and your child are inspired and leave with great excitement and interest in the STEM disciplines. Thank you for your involvement in this unique program and best wishes for continued success.

Sincerely,

Susan E. Short, Ph.D.
Associate Vice President for Engagement

/kr

Dr. Leigh McCue-Weil

Mar 23, 2013 | Interactive Session

"How can my phone make my boat safer?"

These days it seems everyone is carrying around a smart phone. But just how smart is that phone? It can give you directions, recommend a restaurant, even let your parents keep an eye on where you are. In this talk we will take that a step further to see how our phones can help us make boating safer. If you have seen popular crabbing TV shows, you have seen how dangerous commercial fishing can be. We will discuss the ins and outs of writing an app to try to alleviate some of that risk.

Leigh McCue-Weil is an Associate Professor in Virginia Tech's Department of Aerospace and Ocean Engineering, an affiliate to the VT Department of Engineering Education, and a core faculty member of the Virginia Center for Autonomous Systems (I like robots.). Her research interests are in nonlinear and chaotic vessel dynamics including capsize, parametric rolling, and sea-based aviation operations largely involving analytical and numerical approaches including computational fluid dynamics. This work has been supported by ONR, NSF, CSC, and QinetiQ. Additionally, Dr. McCue-Weil has twice participated in the ASEE-ONR Summer Faculty Research Program to continue her work in collaboration with researchers at the Carderock Division of the Naval Surface Warfare Center and is currently on sabbatical for the 2011-2012 academic year with the Combatant Craft Division of the Naval Surface Warfare Center, Carderock.

Dr. McCue-Weil received her BSE degree in Mechanical and Aerospace Engineering in 2000 from Princeton University. She earned her graduate degrees from the University of Michigan in Aerospace Engineering (MSE 2001) and Naval Architecture and Marine Engineering (MSE 2002, PhD 2004). At the 2007 Virginia Tech College of Engineering Dean's Awards she received an 'Outstanding New Assistant Professor' award; at the 2010 Dean's Awards she was named a 'Faculty Fellow'. In 2008 Dr. McCue-Weil received both an NSF Faculty Early Career Development (CAREER) grant and an ONR Young Investigator Program (YIP) grant. McCue-Weil is the recipient of a Presidential Early Career Award for Scientists and Engineers (PECASE).

Hands-on Exhibits

Weightless Wonder
The team will have a poster explaining what we do in the microgravity environment and what the environment is like. We will have our previous experiment set up to show how the equipment works and the kids will be able to get hands on with some of it!

Microgravity at Virginia Tech
The Microgravity team is a group of undergraduate students with the goal to propose, design, and fly an experiment aboard NASAs Weightless Wonder plane. The team has successfully submitted two proposals that have both been accepted. The first experiment flew last June and the next experiment is currently under work to be flown this summer.

Make-Your-Own Play Dough
Kids will be given a short explanation of how the process of making high quality play dough requires using an engineer's design approach. They will learn to make a plan, test it, analyze the result, and make changes to their plan in order to reach their desired result. Each child will receive a plastic baggy filled with a small amount of flour. They will have to add water and salt to their baggy in different amounts in order to make play dough that is the consistency they want. It is difficult to get the right consistency on the first try, so the kids will need to keep adding flour, water, and salt until their mixture is perfect. Volunteers will be available to adjust mixtures, if needed. In the end the kids will have a handful of safe play dough to shape into anything!

Society of Women Engineers
The Virginia Tech chapter of Society of Women Engineers (SWE) contributes to the campus, the community, and its members. SWE participates in many service projects aimed at encouraging young women to consider a career in engineering as well as projects that help the environment and the New River Valley community. SWE creates a network of women engineers throughout Virginia Tech and demonstrates the value of diversity on this campus. SWE also offers scholarship, career advice, mentoring, and professional, social, and service opportunities for its members.

Aging Farm Animals by their TEETH
Ever wonder how veterinarians age animals just by looking at their teeth?

Come learn the art of aging cattle, sheep and horses by the characteristics of their dental pattern. Veterinary students will give instruction on how to examine teeth and estimate the relative age of the animals.

Information and examples will be provided to estimate the age of cattle and sheep, and the detailed dental patterns associated with horses will also be explained. Abnormal dental characteristics and vices can also impact the wear of animal teeth. Learn how something that commonly goes unnoticed can tell us so much!

VMRCVM Food Animal Practitioner's Club
The Food Animal Practitioners Club of the Virginia-Maryland Regional College of Veterinary Medicine is a group of students with an interest in food animals. The club holds weekly rounds where various veterinary cases and farm management issues are explored. At club meetings, outside speakers discuss a variety of aspects ranging from career opportunities and practicing food animal veterinary medicine abroad to new products and field experts. The club also participates in service activities including Heifer International to raise money for the development of cattle herds in other countries. Members participate in wet labs to gain experience with food animals which includes palpation, hoof trimmingand many other activities.

Virginia Career VIEW, School of Education
What careers are related to today's session? Where can I learn more about being an Aerospace or Ocean Engineer? What schools in Virginia offer these programs? What are the requirements to become an Aerospace or Ocean Engineer? What do they do? Find out answers to these questions and more at the Virginia Career VIEW table. Relate what you learned today to careers for tomorrow.

Virginia Career VIEW School of Education
Virginia VIEW is the state's K-8 Career Exploration and Educational Planning System. VIEW has been promoting career development in the Commonwealth for over 32 years. Our website, www.vacareerview.org is designed to give K-8 students an interactive experience with games, resources, and assessments that promote career exploration and planning for post-secondary education.

The Institute for Advanced Learning and Research (IALR) in Danville, Virginia will be transporting its STEM (Science, Technology, Engineering, & Math Mobile Learning Lab - STEM ML^2) to Virginia Tech on Saturday, March 23 to participate in the 2013 Kids' Tech University. The goal of the *GReEn Jobs* (Gearing-up for Renewable Energy Jobs) project is to provide professional development opportunities to teachers and hands-on activities for K-12 students that increase their knowledge and understanding of clean energy and the emerging green economy. The unit will include photovoltaic cells, a wind turbine, a human power generator, the House of Pressure, and a vegetable oil processing unit (reclaimed fuel will power the truck that pulls the STEM lab). The hands-on lab activities

Hands-on Exhibits

that connect to the demonstration technologies will reinforce STEM concepts.

Sail On

Do you want to make a sail to propel a boat? Come by our booth to make a sail and learn how make a boat out of ordinary equipment that you could duplicate at home! We'll test the sails and see if yours can win the race!

In addition to making a sail, you will be playing with lots of other fun physics toys!

Enriched Physics Outreach

Enriched Physics Outreach is a class that undergraduate physics students take to learn how to make interactive physics lessons for students at the K-12 level. We focus on age-appropriate hands-on lessons which promote making predictions and experimenting with both high-tech and low-tech equipment.

Mapping Home: The Importance of Place and Space

Home is where the heart is. Cultural definitions of place, space, and the natural environment govern how people across the world view their home. When people travel, they first look for things that are familiar and remind them of home. But with globalization, the definition of home changes as people are exposed to new things. We will be using different maps and mapping techniques to explore students perceptions of home - what makes home home. Is it the climate? It is physical features? How is home defined? Can you find home from 6 blocks away? From 100 miles? From 1000 miles? Can you find home without technology? What characteristics of new places would make it home?

Geographic Society at Virginia Tech

The Geographic Society at Virginia Tech is run by undergraduate students in the Department of Geography from both the Geography and Meteorology programs. The primary goal of the Geographic Society is to promote geography education and awareness across the Commonwealth of Virginia. Our primary activities include outreach to K-12 educators and students.

SeaPerch: Building an ROV

Kids will be able to see the steps that go into building a simple Remote Operated Vehicle (ROV). There will be several hands-on activities related to building and operating a SeaPerch ROV. Topics that will be covered are ballasting, motor positioning, and controlling an ROV. Ballasting discusses how the density of an object affects whether it sinks or floats, and how the positioning of floats and weights affects the trim of the ROV. Motor positioning explores how the direction and position of the motor affects the movement of the ROV. Controlling an ROV examines how a simple control box is wired and how different inputs move the ROV.

Autonomous Underwater Vehicle Team (AUVT)

Like autonomous land vehicles, autonomous underwater vehicles (AUVs) are equipped with sensors and controls for navigation. These underwater robots also have propulsion and ballast systems. Founded in 2002, Virginia Tech's AUVT has approximately 30 members representing several engineering disciplines. Each year, the team designs and builds an autonomous submarine to enter in the Association for Unmanned Vehicle Systems International Competition in San Diego. In addition to operating without human intervention, the AUVs are required to navigate underwater obstacles, identify targets visually, launch "torpedoes", and locate an acoustic beacon with passive sonar.

Virginia 4-H Robotics

4-H Robotics engages kids in critical math, science & programming skills. Using this curriculum, youth will: Build an understanding of basic science concepts related to robotics; Apply the processes of scientific inquiry and engineering design; Build skills in science, engineering and technology; Use the tools of technology to enhance their learning; Explore related careers in these fields; Apply the skills and knowledge they are developing to new challenges. The 4-H Robotics Curriculum is comprised of three tracks; each is designed to meet the diverse requirements of 4-H clubs, after-school programs, individual youth and school enrichment activities. Participants will learn basic science and robotics concepts online through meaningful and engaging mediums including video simulations.

Virginia 4-H, Virginia Cooperative Extension, CALS

4-H is the youth development education program of Virginia Cooperative Extension. 4-H is rich with learning experiences where young people partner with caring adults and volunteers in a fellowship unlike any other program available to youth today. Through 4-H, young people are encouraged to participate in a variety of activities that emphasize 4-H's "learning by doing" philosophy of youth development.

Explore Our World by Investigating Materials

We invite you to stop by our booth and become a materials scientist by investigating the properties of some materials! Through hands-on activities, you'll discover why oil and water don't mix, what magnetic fields look like, what causes silly putty to act the way it does, and more!!

Hosted by Prof. Lou Madsen's research group - Chemistry Department

We study how molecules interact to determine properties of the materials humans use, and we use

this knowledge to design all new materials. We work on materials used in advanced technologies such as lithium batteries, water purification, and hydrogen fuel cells.

Redesigning our World Before it Fails

We will cover four areas of human factors. 'Safety' will consist of numerous pictures of people performing hazardous tasks and participants must play a 'Where's Waldo' type finding game for the hazards (not all are so obvious). 'Accessibility' will have participants trying to do a fine motor task while wearing gloves. 'Biomechanics' will display the electrical activities of participants' muscle movements in real time using an EMG test. 'Cognitive' will have two simple simultaneous tasks to do which will tax attentional resources and teach them about what multitasking really is.

Human Factors and Ergonomics Society

The Society's mission is to promote the discovery and exchange of knowledge concerning the characteristics of human beings that are applicable to the design of systems and devices of all kinds. We further serious consideration of knowledge about the assignment of appropriate functions for humans and machines, whether people serve as operators, maintainers, or users in the system. Furthermore, we advocate systematic use of such knowledge to achieve compatibility in the design of interactive systems of people, machines, and environments to ensure their effectiveness, safety, and ease of performance. The VT student chapter is one of the largest in the nation; winning gold chapter status continuously for numerous years.

Lunabotics

We will have a robotic arm that can be used to pick up candy in order to display a use of robotics in a fun way. We will also have another small autonomous robot (such as a BoeBot or LEGO NXT) to display autonomous navigation of a field of obstacles. We will hopefully have at least a prototype of our team's competition robot with a display to tell kids a bit about our team.

Lunabotics

NASA sponsors a competition every year called the Lunabotics Mining Competition. We have a team of seniors in Spacecraft Design and several underclassmen who design and build a robot that mines a Lunar Regolith simulant and navigates a field of obstacles. Dr. Kevin Shinpaugh is our advisor.

Atmospheric Fun For All

How does weather change as you go up towards space? What are things like in the upper atmosphere? These are questions that Atmoshperic Teaching Experiment at Virginia Tech is trying to answer!

We will have examples of the different equipment that scientists use to take data in the upper atmoshpere. We will also have games and activities that will get kids to start thinking like engineers!

Atmospheric Teaching Experiment at Virginia Tech

Atmospheric Teaching Experiment at Virginia Tech is a design team that has a strong emphasis on educational outreach. We design a weather balloon, and using that weather balloon we create a curriculum to teach kids about what's happening in the upper atmosphere. We then take this curriculum to elementary and middle schools around Virginia. To make it even more exciting, we launch our weather balloon on Virginia Tech's Drillfield, and invite all the kids we have worked with to come. It is our hope that by doing this, kids will become more interested in Science, Technology, Engineering and Math (STEM).

This year's launch will be on April 14th.

Virginia Tech Formula SAE

The Formula SAE competition is for SAE student members to conceive, design, fabricate, and compete with small formula-style racing cars. The restrictions on the car frame and engine are limited so that the knowledge, creativity, and imagination of the students are challenged. The cars are built with a team effort over a period of about one year and are taken to the annual competition for judging and comparison with approximately 130 other vehicles from colleges and universities throughout the world. The end result is a great experience for young engineers in a meaningful engineering project as well as the opportunity of working in a dedicated team effort.

The 2012 car which is on display goes from 0-60 in less than 4 seconds and out handles Porsches.

VT Motorsports

For the purpose of this competition, the students are to assume that a manufacturing firm has engaged them to produce a prototype car for evaluation as a production item. The intended sales market is the nonprofessional weekend autocross racer. Therefore, the car must have very high performance in terms of its acceleration, braking, and handling qualities. The car must be low in cost, easy to maintain, and reliable. In addition, the car's marketability is enhanced by other factors such as aesthetics, comfort and use of common parts. The manufacturing firm is planning to produce four (4) cars

Hands-on Exhibits

per day for a limited production run and the prototype vehicle should actually cost below $25,000. The challenge to the design team is to design and fabricate a prototype car that best meets these goal

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Have you ever realized that you could be a part of the first human generation to travel to a different planet? Sending a human to Mars is starting to become extremely feasible and it's time for us to start getting excited about the possibility of this happening in the near future. At our booth we will be teaching about the surface of Mars, current and possible future missions to Mars, and we will be explaining why it is that humans should want to explore the Martian surface as well. We will be helping students participate in a variety of hands on activities such as instructing students through building their very own paper rockets. Make sure to come stop by and learn about the next "giant leap for mankind" at our Manned Mars Mission booth!

About Us: We are a senior design team at Virginia Tech participating in the RASC-Al Senior Design Competition, which is taking place in Coco Beach, Florida in June. For the project our seven man team is designing a manned mission to mars. This involves designing the launch of 4 crew members onto our own innovative trajectory to Mars, the landing and multiple-month stay on the surface of Mars for scientific research, and the trip back Earth.

Ware Lab and Engineering Education Tablet PC Demonstration

Ware Lab will have several of its award winning undergraudate teams on display at the March 23rd Kids Tech event. General information on these teams and others not on display will be featured at this table.

The College of Engineering requires tablet PC technology for entering freshmen. A tablet featuring stylus sketching and graphic capabilities will be on display for participantes to use.

Ware Lab - Engineering Education and College of Engineering

Ware Lab is home to over 18 undergraduate engineering teams including Hybrid Electric Vehicle, Human Powered Sub, Formula SAE and BAJA SAE. Recent additions include the all electric BOLT Team and Human Powered Vehicle.

The Engineering Education department serves incoming freshmen to the college of engineering by providing comprehensive introductory courses in engineering exploration, digital design and an overview of the engineering design process. The department also offers graduate certifications and a doctorate in Engineeing Education.

Know Your Roots: Shells, Scales, and Skeletons

Come find out how you are related to a worm! At this exhibit, you will learn how all organisms on earth are connected by the tree of life. Are the wings of flies the same as those of eagles? Have you ever seen a tree eat mosquitos? What are the differences between seashells and dinosaur teeth? Some creatures have shells and others have bones made from very different crystals. Learn all about structures and skeletons we call biominerals, from large bones to microscopic shells!

Department of Geosciences, Biogeochemistry of Earth Processes

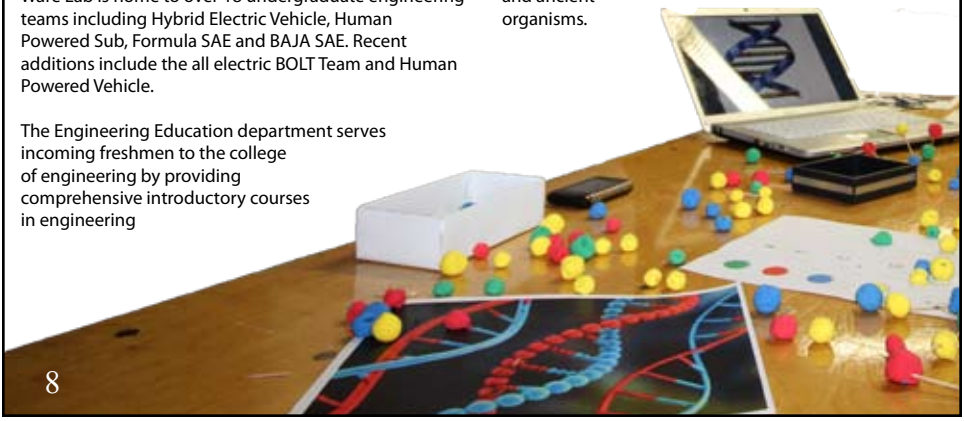
The Biogeochemistry of Earth Processes (bgep) group conducts interdisciplinary research into the physical basis for biomineral formation and the complex patterns of mineralization that are observed in modern and ancient organisms.

How Crystals Grow: An Interactive Illustration

Much like we use blocks to build fantastic shapes and structures, nature uses its own building blocks to make the crystals that we see in rocks and in skeletal structures. What better way to demonstrate this wonderful occurrence than with Lego blocks! This exhibit shows a "zoomed-in" view of a growing crystal face that is made of Legos and explains the step-by-step process that occurs as the crystal grows— and how a crystal dissolves! Students can "grow" their own crystals by playing with the different pre-made examples. Come to learn and play with geology on the nanoscale!

Virginia Tech Geosciences, Biogeochemistry of Earth Processes Group

The Biogeochemistry of Earth Processes (bgep) group conducts interdisciplinary research into the physical basis for biomineral formation and the complex patterns of mineralization that are observed in modern and ancient organisms.



Hands-on Exhibits

Ocean Acidification: Dangerous Changes in Earth's Seas

In this activity you will learn about the pH of the ocean and why humans should be concerned that the oceans are becoming more acid. By testing the pH of different liquids, you will learn the concept of acidity and understand why the rising level of carbon dioxide in atmosphere is making the oceans more acid. This may be dangerous for the ocean's inhabitants that make their skeletons of calcium carbonate. Explore how changing environments may affect the production of biominerals worldwide.

Department of Geosciences, Biogeochemistry of Earth Processes Group

The Biogeochemistry of Earth Processes (bgep) group conducts interdisciplinary research into the physical basis for biomineral formation and the complex patterns of mineralization that are observed in modern and ancient environments.

Shelling Out the Shapes: The Incredible World of the Mollusca Phylum

This exhibit demonstrates the amazing diversity of marine creatures from the important phylum— the Mollusca. Explore the wide variety of shapes and colors of calcium carbonate skeletons that are made by many, but not all, of these organisms. The biogeochemistry research group in the Department of Geosciences investigates the biochemical processes that control how biomineralized structures are formed. In this remarkable collection you will experience the many shapes and sizes of mollusks from around the globe!

Department of Geosciences, Biogeochemistry of Earth Processes Group

The Biogeochemistry of Earth Processes (bgep) group conducts interdisciplinary research into the physical basis for biomineral formation and the complex patterns of mineralization that are observed in modern and ancient organisms.

Turning and flipping: How to find point symmetry in minerals

Have you ever noticed how ceiling tiles are laid out in repeating patterns, how your body looks the same on both sides or how mineral crystals in museums have complex but beautiful and equal shapes? These are a few simple examples of symmetry in our everyday world! This exhibit shows you how to identify symmetry and the different types of symmetries that are observed in nature. By building two types of polyhedra and 'decorating' them with different kinds of symmetry, you will learn how to find and identify 'elements of symmetry'. You will also learn the types of symmetry that are in specific molecules and in minerals. Build two types of symmetry elements to take home and learn how these polyhedra also represent how atoms are assembled to form crystals!

Department of Geosciences, Mineralogy and Petrology Group

The Mineralogy and Petrology group conducts interdisciplinary research on mineral formation and high-temperaure igneous and metamorphic rocks and processes.

How Do You Know a Fish's Age?

All living things including fish, amphibians, and trees grow old and age just like you. Think about if you did not know when your birthday was. How would you know your age? We face the same problem when aging other organisms. How do we know how old animals are if we do not know their birthdays? We care about the age of fish, trees, and even you, because it helps us understand if animals are growing faster or slower than expected. Knowing a fish's age helps scientists determine if there is disease or too many fish and not enough food occurring in a water body. One way we age fish is looking at a bone in a fish's inner ear called the "otolith". By counting rings on the otolith, we can determine what year the fish was born, which helps scientists answer many questions about the fish's health.

Bonnie Myers/Department of Fish and Wildlife Conservation

I am a Master's student in the Department of Fish and Wildlife Conservation studying variations in community fish production across a temperature gradient. My project focuses on possible effects of climate change on fish communities. I along with a couple undergraduate students will be conducting this hands-on experience. During this hands-on exhibit, we are aiming to educate future scientists in the making on one particular tool used to manage fish populations and on the importance of conserving healthy fish communities.

The Secret Lives and Many Talents of Good Bacteria

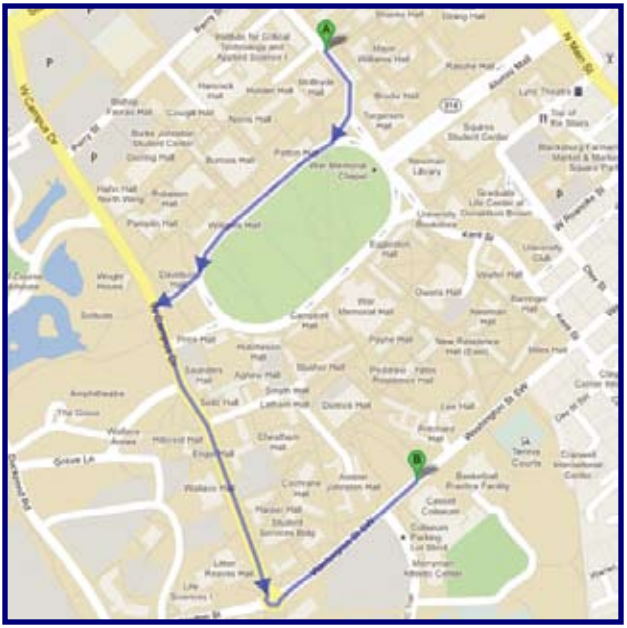
Bacteria are everywhere. They are in the soil, the air, on your skin, and inside your body. In fact the cells that make up you are actually only 10% you, and 90% bacteria. Most bacteria you hear about are the pathogens that make people sick like Salmonella and Listeria, but those are only a small group of troublemakers. Most bacteria are harmless and many are even beneficial. Come visit our table to learn about how good bacteria are in many everyday items that you may not realize. Plus, you can practice being a microbiologist! Take a look inside the secret lives of ordinary microbes with some amazing abilities.

Adam Nelson, PhD., Senior Scientist, Novozymes Biologicals.

Novozymes Biologicals
5400 Corporate Circle
Salem, VA 24153
Contact: ADNX@novozymes.com

Driving Directions

Driving directions from McBryde Hall to Cassell Coliseum



FROM GOOGLE MAPS

START FROM
McBryde Hall
Blacksburg, VA 24060

1 - Head southeast on Stanger St toward Drillfield Dr (ABOUT 0.1 MILES)

2 - Slight right onto Drillfield Dr (ABOUT 0.2 MILES)

3 - Slight right toward W Campus Dr (ABOUT 377 FEET)

4 - Turn left onto W Campus Dr (ABOUT 0.4 MILES)

5 - At the traffic circle, take the 2nd exit onto Washington St SW (ABOUT 0.3 MILES)

END AT
Cassell Coliseum
Blacksburg, VA 24060
LATITUDE & LONGITUDE: 37.22313, -80.41948

PARKING AT CASSELL COLISEUM
You are welcome to park in the Coliseum Lot, Stadium Lot, Southgate Center Lot or Chicken Hill Lot.

Educator Workshops

We are excited to offer Recertification Points in conjunction with the KTU program.

Educators will learn it, teach it, and take it back to the classroom.

Interact with:

- **S**cientists
- **T**echnology Experts
- **E**ngineers
- **M**athematicians

You will engage in an exciting, hands-on teaching experience, and then apply what you learned in a unique, first-hand teaching environment with 3rd-7th graders. You will also be able to participate in ongoing community blogs and network with other teachers and education specialists.

This program is ideal for elementary and middle school teachers, out of school time educators, or others interested in STEM teaching.

March Educator Workshop Information

- **Who:** Teachers of 3rd- 7th grade interested in STEM and Earth Science topics
- **When:** Dates & Times

  Friday, Mar. 22, 2013, 1:00pm - 5:00pm

  Saturday, Mar. 23, 2013, 8:30am - 4:30pm
- **Where:** Campus, Virginia Tech

  Friday, Mar. 22, 1:00-5:00 PM: Virginia Bioinformatics Institute, Room 325
  Saturday, Mar. 23, Meet at 8:30 AM in McBryde Hall, Room 126
- **Cost:** No cost to participate! 12 recertification points offered. Funding for half-day substitutes available for the first 15 participants to register.

Any educator who has a child enrolled in Kids' Tech University and who is attending the teacher workshop will need to arrange for a chaperone to accompany their child during the program. Children are not permitted to attend the educator workshop (regardless of age).

Please visit
http://kidstechuniversity.vbi.vt.edu/
for further information.

Educator Workshops

March Educator Workshop Description

Virginia 4-H is helping teachers make STEM learning fun and engaging for students through a hands-on, experiential workshop offered as part of Kids' Tech University.

The workshop:

- provides opportunities to build STEM knowledge and skills in the area of crystal formation and composition
- encourages student interest in geoscience-related fields.
- explores essential questions: "How are bones and skeletons formed from crystals?" and "How do organic and inorganic crystal structures compare?"

Workshop leaders will work with graduate students to deliver relevant and interesting science activities using best-practice education strategies:

- Dr. Kathleen Jamison (4-H Youth Development and Informal Learning Specialist)
- Dr. Patricia Dove (Renowned Geosciences Professor)
- Mr. Tony Giuffre (Geosciences Ph.D. candidate)
- Ms. Christina Blue (Geosciences Ph.D. student)
- Mr. Sebastian Mergelsberg (Geosciences Ph.D. student)
- Mr. Adam Angel (Geosciences Ph.D. student)
- Dr. Nizou Han (Geosciences Research Scientist)
- Llyn Sharp (Geosciences Outreach Coordinator)

On Friday, March 22, 1:00-5:00 PM teachers will:

- receive coaching on the research topic and an introduction to activities during teacher-training session

On Saturday, March 23, 2013, 8:30-4:30 PM, teachers will:

- participate with the children and researcher in an interactive discussion
- debrief with researcher
- practice hands-on learning activities with children and their parents. Geoscience professors/grad students will serve as coaches and mentors at this time.
- make activity modifications based on classroom needs
- develop plan for classroom application

As a result of the workshops, students have the opportunity for exposure to current and relevant research. They will benefit from their teacher's ability to connect research back to classroom content standards through intentional programming.

Educator Workshop Contacts

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KTU is a program at Virginia Tech with one primary goal: creating the future workforce in

Science,

Technology,

Engineering,

and **Mathematics**

by sparking kids' interest in these fields.

KTU 2013 Program Dates

Jan 26 | Technology Day
Feb 23 | Science Day
Mar 23 | Engineering Day
Apr 06 | Math Day

Contact

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We look forward to seeing you in April!

KTU Kids' Tech University

I am

THE FUTURE OF SCIENCE

VirginiaTech
Virginia Bioinformatics Institute