Kids' Tech University

2011 Program at Virginia Tech

February 26, 2011

Dr. Ellen Cowan

Why are

glaciers in Antarctica important to people who live in Virginia?

VBI VIRGINIA BIOINFORMATICS INSTITUTE AT VIRGINIA TECH

4-H

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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

About the Program

The goal of Kids' Tech University is to spark interest and excitement about **Science**, **Technology**, **Engineering**, and **Mathematics** in children between the ages of 9 -12. KTU's curriculum features three parts:

Storytelling Session

- Held once a month from January to April, in a lecture hall on the Virginia Tech campus

Hands-On Activity

- Held after each storytelling session
- Focused on the specific discipline being discussed in the storytelling session

Virtual Lab

- Activities that are designed to cultivate children's interest in the lecture topics - http://ktu.vbi.vt.edu/
- Performed at home after the day's events

Feb 26th Agenda

10:00 AM

Parents drop off their children for the **storytelling session** in McBryde Hall 100

10:30 - 11:45 AM

Kids enjoy a storytelling session led by Dr. Ellen Cowan titled **"Why are glaciers in Antarctica important to people who live in Virginia?"** in McBryde Hall 100

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

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

1:30 - 3:30 PM

After the storytelling session the students will be escorted by their parents to have lunch and then to the **hands-on portion** of the event. There the students will enjoy the experience of interacting with various exhibits from the Virginia Tech community.

The hands-on activities for this KTU event will be in the Lane Stadium Club boxes and on Stadium Drive located near the boxes.

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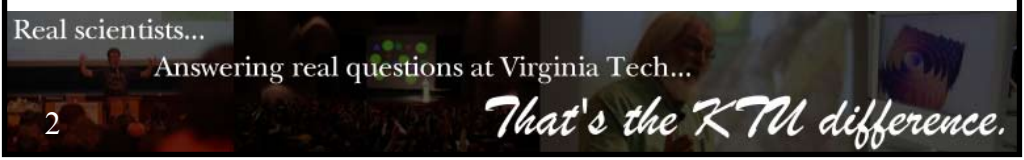

VirginiaTech

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January 14, 2011

Parents and Participants of Kids' Tech University:

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

Kids' Tech University, with informative lectures and exciting hands on events, is designed to ignite an interest in Science, Technology, Engineering and Mathematics (STEM) disciplines for you and your child. We are currently in our third year of offering the Kids' Tech University program through the coordination of Virginia Bioinformatics Institute (VBI) and Virginia 4-H and the leadership of Dr. Kristy Collins, Dr. Reinhard Laubenbacher and Dr. Kathleen Jamison.

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 Vice President for Outreach and International Affairs, I am pleased to welcome you to such a successful program hope you and your child leave with great excitement and interest in the disciplines of Science, Technology, Engineering and Mathematics.

Sincerely,

John E. Dooley, Ph.D.
Vice President for Outreach and International Affairs

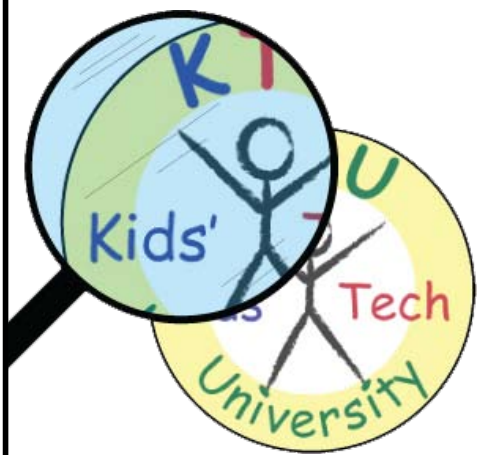
/kr

Dr. Ellen Cowan

Feb 26, 2011 Storytelling Session

"Why are glaciers in Antarctica important to people who live in Virginia?"

Geologists know that Virginia wasn't covered by glaciers even at the peak of the last Ice Age in North America, approximately 20,000 years ago. Yet there are many reasons that we can appreciate glaciers and the work that they do on Earth. Glaciers sculpt beautiful and distinctive landscapes that we see around the world in mountains and in Polar Regions. Antarctica is a vast continent almost completely covered by ice. How has the Antarctic ice sheet responded to past changes in climate? We can use clues from rock layers, fossils and gas bubbles in ice to study the history of Antarctica's glaciers. With this information we can estimate the affects of a warmer world on Antarctica's ice and determine the affects far away in Virginia.



Dr. Ellen Cowan is a Professor of Geology at Appalachian State University in Boone, North Carolina. Her research involves the study of the sedimentary record of glaciers that reach the sea. She participated in two Antarctic research expeditions as part of the ANDRILL Project (ANarctic geological DRILLing) and the Ocean Drilling Program and has conducted research on glaciers in the bays and fjords of Alaska.

Hands-on Exhibits

The hands-on activities for this KTU event will be in the Lane Stadium Club boxes and on Stadium Drive located near the boxes.

Computing and Gaming through the Ages

An exhibit of computing through the ages. Come see what gaming looked like in the 70's and 80's! Ever wonder what a "punch card" or a "slide rule" looked like? What did kids in the 70's use to listen to their favorite music? (Hint: There were no MP3 players!) Find out what year the Internet was born. Kids will have a chance to take a sneak peek into Computers Through the Ages: The Evolution of Computing. We will have several dinosaur computers and gaming units on display as well as a PowerPoint presentation highlighting their evolution.

The Techsupport Community at Virginia Tech is a collaborative discussion group, facilitated by a listserv, of Central and Departmental Information Technology faculty and staff.

Where in the world am I?

Hosted by Virginia Cooperative Extension Agents, Emily Nester, Tazewell County 4-H; and Daniel Collins, Grayson County 4-H.

We will be exploring the world of GIS and Google Earth; youth participants will be able to electronically pinpoint their 'world' address on a projectable map! We will provide information on Google Earth, GIS, and Geo-Caching!

From 3D Printing to Additive Manufacturing

Why settle for printing pictures of your new ideas, when you can print them physically in 3D? At this booth, participants will get a chance to interact with 3D Printing technology. Starting from a three-dimensional computer drawing, a 3D Printer creates objects by depositing material for the part one cross-sectional layer at a time. The technology is primarily used to help engineers to quickly create prototypes of new products that they are designing.

At the DREAMS Lab at Virginia Tech, we are researching how these machines can be used to make end-use products. How about a customized bicycle helmet? A custom iPhone cover? A set of braces? Only 3D Printing can make this a reality!

Visitors will be able to see this technology in action. Two desktop 3D Printers will be on display along with a 3D Scanner. Examples of parts made by other types of 3D printers will also be on display for visitors to interact with.

The mission of the DREAMS Lab (www.me.vt.edu/dreams) is to lead the transition from "rapid prototyping" to "additive manufacturing" through advances in product design, process and materials research, and engineering education. Dr. Williams, the director of the DREAMS Lab, is an Assistant Professor at Virginia Tech with a joint appointment in the Mechanical Engineering (www.me.vt.edu) and Engineering Education (www.enge.vt.edu) departments. His joint appointment reflects his diverse research interests which include layered manufacturing, design education, and product design. The construction of

the Fab@Home machine has been funded by a grant sponsored by the VT Arts Initiative. Through this project the team is exploring the integration of the 3D printing in schools to provide a context for teaching students basic math, science, and engineering principles.

Looking Down is Looking Up! Why do we work with aerial photography?

Geospatial tools, which include geographic information systems (GIS), global positioning systems (GPS) and remote sensing, provide us with an understanding of the earth. Through this activity, participants will use GIS tools to identify changes on the earth's surface. We will examine aerial photography from several different time periods. Based on these data, students will explore, estimate, and measure general changes in land use during these time periods, and will explore impacts to the environment and communities that are associated with these changes.

Dr. John McGee is an associate professor in the Department of Forest Resources and Environmental Conservation at Virginia Tech through the Virginia Geospatial Extension Program. The Virginia Geospatial Extension Program provides workforce development opportunities in GPS, GIS, and remote sensing to support the needs of local governments, state agencies, faculty at 4-year colleges and universities, and pre-college educators. The Geospatial Extension Program directly supports the needs of Virginia Cooperative Extension's educators and specialists and related programming efforts.

Trenchless Technologies

This exhibit will focus on the introduction of trenchless technologies used for condition assessment and repair/rehabilitation of our underground infrastructures. Videos about how those technologies work will be shown to the kids. Also, we will demonstrate our equipment (CCTV robotic camera) which can give kids a visual understanding of the importance of the trencheless technologies.

North American Society for Trenchless Technology (NASTT), a student chapter in Civil and Environmental Engineering Department at Virginia Tech. Our chapter was founded in 2008 with the help of our advisor Dr. Sunil Sinha, and now has more than 40 student

members. Our mission aims at spreading the awareness of trenchless technologies and their importance in the infrastructure management, broadening the horizon of engineering students about the new technologies and keeping them in close contact with leading practices in modern underground asset management.

READING THE PAST: SEQUENCE STRATIGRAPHY WITH THE PO PLAIN PROJECT

Hands-on activity using magnification to sort samples and figure out clues to sea level change. Geologists use sediments to locate past sea levels. A National Science Foundation funded project at Virginia Tech is now adding fossil information to more precisely determine the depth of sea level as it changed in the Mediterranean Sea. Undergraduate interns developed this activity for kids, based on an activity from ANDRILL.

Presenter: Museum of Geosciences
Llyn Sharp, Ceseley Haynes, New Intern Person
Virginia Tech
contact llyn@vt.edu

TENSEGRITY AND FLYING VEHICLES

In this presentation tensegrity structures will be displayed to illustrate their properties as well as airplanes and helicopters. In simple terms, a tensegrity structure is an assembly of disjointed bars and tendons that, under no external forces, yields equilibrium with all tendons in tension. These fascinating structures originated in the world of art and rapidly crossed boundaries into science and engineering being perceived as the structural systems of the future due to their lightness, adaptability and multifunctionality.

Host: Dr. Cornel Sultan, Assistant Prof. in AOE
Dr. Sultan has spent a significant amount of time in industry, working among others for United Technologies Research Center primarily on helicopter control. He has also been affiliated with Harvard University where he worked on mathematical modeling of biological systems. At Virginia Tech he is a Faculty in the AOE Department and his research is focused on tensegrity and membrane structures, helicopters and coordinated flight. He is also working on bio-inspired engineering designs such as energy harvesting systems and novel structural systems.

COMPUTER SCIENCE COMMUNITY SERVICE (CS^2), a student volunteer organization at Virginia Tech.

Our organization is committed to raising interest in Computer Science and technology education in the community through volunteer efforts. We intend to set up 4-8 laptop computers running some of the software and programs we teach the kids at our volunteer sites at local schools. These will include Google sketch-up for simple 3d modeling, games designed to teach simple programming principles, and a simple game builder. We just let participants know what each computer is running and allow the kids to pick and choose which stations they want to try out

while our volunteers provide guidance with the programs.

The Virginia Tech Chapter of Alpha Pi Mu, the Industrial Engineering Honor Society will be presenting a lego-building exercise for kids.

Industrial engineering at its core is the manifestation of teamwork to build things and move processes in the most efficient manner. The lego-building help kids interact with one another through lego-building, where one will communicate steps and the other will build. Teamwork at its essence. And who doesn't love Legos?!

Students will use LEGO® MINDSTORMS® to build and program their own robots with the assistance of Virginia Tech graduate students who will guide through the different steps. Robots will be capable of gathering information about the surrounding environment using acoustic, touch, infrared and ultrasound sensors. Different behaviors can be programmed to let the robots react to stimuli, such as start moving when clapping, stop at the edge of a table or follow a line. The students will be exposed to all aspect of design and programming of the robot.

The Virginia Center for Autonomous Systems (VaCAS) facilitates interdisciplinary research in autonomous systems technology. VaCAS hosts research activities spanning every application domain: water, land, air, and space. VaCAS member research activities range from fundamental control theory to vehicle development to applications for science, security, and commerce.

Discovering How Buildings Respond to Earthquakes

Students will discover concepts related to how buildings respond during earthquakes in this hands-on activity. Students are encouraged to build a multistory scale building using K'nex 'The world's most creative construction and building toys'. The structures will then be placed on a shake table that will reproduce the ground motion that occurred during the magnitude 6.7 earthquake at Northridge California in 1994. Through this hands-on demonstration students will discover how the stiffness and mass of a structure affect its earthquake response, investigate natural frequency of a structure, and learn concepts related to designing structures to survive earthquakes.

Dr. Matthew R. Eatherton is an Assistant Professor in the Civil Engineering Department at Virginia Tech. His research group is developing new structural systems that have enhanced seismic performance, making existing structural systems more efficient in earthquake prone areas, and improving our understanding of how earthquake ground motions affect structural response.

Human-Powered Submarine team will be presenting a hands-on activity where the kids will be able to figure out how one can use the components of a design to complete a design. We are engraving a design of our submarine or

a component of our sub into wood and cutting the wood into equal squares then scramble them up, and have the kids try to fit the pieces together in the right position.

Animal Adaptations to Polar Cold

How do animals survive in a land where the average winter temperature can be less than -30°F? Animals in Polar Regions have special adaptations that help them to endure temperature that can plunge to below -100°F. An interactive demonstration will show how a covering of blubber helps to insulate marine mammals and penguins. Other adaptations such as coloration and special fur or feathers will also be explored.

The exercise came from the C2S2 Education Program, ANDRILL Project. Catherine Short, 4-H Extension Agent, King William and King & Queen Counties.

MicroN_BASE Lab

Our project uses gadgets called Microbial Fuel Cells to make electricity for places that can't get it easily. We feed wastewater from a sewer to the germs we put in the fuel cell and they give off enough electricity to power small items like a fan or a light. People have been using these for a long time, but right now they don't make enough electricity to make them really useful. We are trying different things to make the fuel cells smaller and put out more electricity.

Our project is hosted by the MicroN BASE (Micro/Nano Biotic/Abiotic Systems Engineering) laboratory. The MicroN BASE lab conducts research in a number of different areas at the intersection of biological and nanoscale sciences. The principal investigator for this work is Dr. Bahareh Behkam, with Dr. Michael Ellis co-advising.

The Virginia Tech Assistive Technologies department

is proud to be demonstrating the benefits of assistive technologies (AT) for enhancing, maintaining, or increasing a person's abilities by using computers for learning, teaching, working, recreation, and maintaining independence. With a focus on tools for people with disabilities, the participants will experience:

- **Computers and special-purpose video magnifiers** for visual magnification, color filtering, and contrast enhancements for people with visual difficulties,

- **Assistive reading and literacy tools** that use text-to-speech capabilities for people with learning, visual, or print

disabilities,

•**Voice recognition, touch screen, tablet pc, and/or adaptive input devices** to assist people with difficulties in writing due to physical or learning disabilities, and

•**Note taking aides and organizational tools** for anyone in the classroom.

Besides looking at specialized AT applications, the AT department will be demonstrating existing accessibility options already built-in to computer operating systems and available to everyone.

SOUTHWEST VATS is one of three regional sites of the Virginia Assistive Technology System, a statewide project committed to improving the quality of life for all Virginians by increasing awareness and accessibility of assistive technology (AT). Established in 1990, VATS is administered by the Virginia Department of Rehabilitative Services (DRS). Our Southwest Region encompasses 14,000 square miles in 29 counties and 13 independent cities.

SIGMA ALPHA is a professional agricultural sorority and is focused on scholarship, leadership and service. One of our biggest goals is to educate the public about agriculture and its importance in society.

We are having the kids make a soil profile with different types of cereal. This will teach them the different textures and particle sizes of each horizon in the soil. We will be modeling the soil that is found in this area.

THE VIRGINIA TECH CHAPTER OF ENGINEERS WITHOUT BORDERS-USA (EWB) partners with disadvantaged communities to improve their quality of life through implementation of environmentally, equitable, and economically sustainable engineering projects, while developing internationally responsible engineers and engineering students through education, encouragement, and experience.

Current international endeavors include projects in the Dominican Republic, Guatemala, Haiti, and Uganda. We also have a K-12 and local outreach program which strives to serve the local community in various forms, including engineering education activities for local area students.

For the EWB exhibit, we will have a See-and-Say dissection. Basically, we will illustrate step-by-step how to take apart the common household toy and the importance of the different parts. Kids will get the opportunity to take apart and reconstruct the toy with tools, while learning how the toy itself works. With this hands-on experience, the kids will receive insight on the process that goes behind designing these types of products. During the activity, we will touch upon the steps involved in engineering design and planning, as well as basic concepts covered in product competition and analysis. Our overall goal with this exhibit is to promote the interest of engineering in young students.

Hands-on Exhibits

Furthermore, our exhibit will contain further information about what EWB itself is about, both locally and internationally. Should people like to get involved with EWB in some form, relative information will be available.

We are Virginia Tech's Interdisciplinary Studies Student Organization (IDSTSO), an organization filled with aspiring elementary school teachers. Our goal is to engage children in our study of geography.

Our geography exhibit will enhance the knowledge of cultural celebrations around the world as well as understanding important historical expansion in a fun and interactive way. We are so excited to get the opportunity to work with your children; we look forward to seeing you all!

What is Human Factors?
Human Factors is a specialization of engineering and branch of applied psychology in which systems such as computers, medical devices and airplanes are designed, built and assessed upon how safe it is for people to use them. During the sessions kids will learn how humans process information and how to design products and systems incorporating human's strength and compensate for their weaknesses.

Kids also will learn about: memory, learning, sensation, perception, feedback, thinking, assumptions and interpretation.

About the Group: Human Factors and Ergonomics Society
Our mission is to promote discovery and exchange of knowledge concerning the characteristics of human beings that are applicable to the design of systems and devices of all kinds. The purpose of our society is to promote and advance the understanding of human factors involved in the design, manufacture, and use of machines, systems, and devices of all kinds through the exchange of knowledge and methodology in the behavioral, biological, and physical sciences. We are planning to have lab visits, community outreach, social events, and a speaker series to promote our organization.

The Formula SAE team is a senior design project that challenges students to design, build, and race an open-wheel formula style race car. The vehicle is judged in static categories such as engineering design, presentation, and cost analysis and dynamic events such as autocross, acceleration, and endurance. Competitions are held annually in several locations around the world such as Brasil, Italy, and Germany. The competition that VT motorsports attends each year is held in Michigan where we compete against over 120 teams from across the United States and around the world. The students on the team are not only responsible for designing and building the car, but also raising money from corporate sponsors and keeping track of the finances.

Hands-on Exhibits

For our design teams, aerodynamics is very important as our CanSat is deployed from the rocket and falls back to the earth. Paper rockets have similar aerodynamic challenges that have to be considered during their design. A thin strip of paper will wrap around a pencil and be taped to form the fuselage of the rocket. The pencil is then removed from the fuselage and then cut at an angle at the top and taped to form a nose cone. Fins may be added to the rocket. The rockets are now ready for their launch on a straw.

Our organization (CanSat at VT) has agreed to hold an exhibit. We are a student organization that represents the three CanSat teams from Virginia Tech. CanSat is a competition for students to build a miniature satellite roughly the size of two soda cans that gets launched into the lower atmosphere and collects and transmits atmospheric and telemetry data on its way down to the ground.

The Hybrid Electric Vehicle Team of Virginia Tech is a competitive engineering team. HEVT is currently participating in the three-year competition, EcoCAR: The NeXt Challenge, which is sponsored mostly by the Department of Energy and General Motors. The main goals of EcoCAR are to convert a donated GM vehicle into a fully functional alternative-energy vehicle that maximizes efficiency and minimizes harmful emissions while maintaining consumer acceptability. HEVT's vehicle is a plug-in hybrid that uses e-85 ethanol instead of traditional fuel since it is renewable and burns cleaner. HEVT loves to take their vehicle into the community not only to show off the hard work of the engineers, but to educate the public about hybrids and "green" vehicle technology.

At Kids' Tech, HEVT will have toy hybrid cars to help demonstrate the idea of using two energy sources as well as other resources to help the public understand more about the project.

Hot Topics in Cool Science

Through the compelling story of ANDRILL's **(*AN*tarctic geological *DRILL*ing)** research in the extremes of Antarctica, participants will be introduced to cutting-edge climate change science and *Antarctica's Climate Secrets*. ANDRILL has developed hands-on materials for educators to use in formal and informal settings. ANDRILL is offering a teacher workshop in conjunction with KTU. The following day, educators from this workshop will lead the hands-on activities they learned about the day prior with the kids of Kids' Tech University.

Waiter, There's A Hole In My Wood

Wood materials are composed of small cells. The properties of these cells affect the use of wood materials throughout history and to today. One of the biggest differences in red oak and white oak are small crystals called tyloses that prevent material from flowing through white oak. Red oak has open pores from one end to the other that we can demonstrate. The holes in wood can be seen under a microscope and are important to

creating all of the wood materials and objects that we use today. Other plant based materials like bamboo and palm are also filled with holes!

Dr. Daniel Hindman is Associate Professor in Wood Science and Forest Products. The Wood Science and Forest Products Department explores every scientific aspect of wood and fiber-based materials; from structure to chemistry to manufacturing and marketing. The Department strives to improve the use of sustainable, biological, renewable resources.

Balloon Rockets

The balloon rocket illustrates Newton's Third Law of Motion: For every action there is an equal and opposite reaction. When a rocket blows out air at high speed in one direction (action), the rocket is pushed in the opposite direction (reaction). The air pushes against the rocket and the rocket pushes back just as hard against the air. Although we will illustrate the law with balloon rockets, the same principles apply to fuel powered rockets. A horizontal track will be set up to race the balloon rockets horizontally. The youth will explore which balloon shape is most advantageous for racing. A rocket simulation program will be displayed on the laptop computer for the youth to simulate different rocket types and flight trajectories.

Exhibitor Information
Sally Farrell, 4-H Extension Agent
Craig County VCE
24838 Craigs Creek Road
New Castle, VA 24127

Contact: sfarrell@vt.edu

The Institute for Advanced Learning and Research (IALR) in Danville, Virginia will be transporting its STEM (Science, Technology, Engineering, & Math Mobile Learning Lab - STEM ML2) to Virginia Tech on Saturday, February 26 to participate in the 2011 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 that connect to the demonstration technologies will reinforce STEM concepts.

NASA and Climate

For more than 50 years, NASA has explored our moon, solar system and beyond — as well as our own home planet. In fact, NASA's uses its unique

vantage point of space to make critical measurements of Earth, from weather, air quality, ice and land surface to observations of Earth's changing climate.

At the NASA tables, you will test your knowledge of the difference between weather and climate, make accurate measurements like a climate scientist, and see what our astronauts have to do to bring the comforts of Earth with them to space. We will have climate change resource information, including information on NASA's Global Climate Change Education program.

Montgomery County 4-H

The motion of an aircraft can be explained by the physical properties defined in Sir Isaac Newton's Laws of Motion. The first law, often known as the law of inertia, states that every object will remain at rest or in uniform motion in a straight line unless compelled to change its state by the action of an external force. The second law defines the mathematical formula that for a constant mass, force is the product of an object's mass and its acceleration. The third law states that for every action, there is an equal and opposite reaction. The motion of an aircraft is driven by these laws. Using simple paper aircraft models, we will learn about these laws as they apply to aerodynamics and the forces of lift, drag, thrust, and weight.

The Crumbling of America's Infrastructure

The condition of our infrastructure is in terrible shape and is in need of repair. The American Society of Civil Engineers publishes a report card for our infrastructure every few years. The most recent grades from 2009 are out and they are embarrassing. The overall grade is a 'D.' We need to make it a priority of ours to improve and fix our crumbling infrastructure. Young kids can help by becoming interested in studying fields of either science or engineering.

The exhibit will feature video clips of examples of our deteriorating infrastructure that kids can select to watch. We hope this will be an eye-opener for students to see what is going on in the world of engineering.

The exhibit will be hosted by Dr. Jesus M. de la Garza, a professor of the Vecellio Construction Engineering and Management Program (VCEMP) and one of his students, Sabina Fedrowitz, a senior in the Civil Engineering Department.

Virginia Career VIEW

We're all about exploring . . . careers! Want to learn more about science and technology careers? Drop by our table to visit Career Town, our interactive game, pick up some "to-go" activities for kids, and get helpful information for parents.

Funded by the Virginia State Department of Education's Career and Technical Education office, all Virginia Career VIEW resources are supportive of Standards of Learning and Virginia Counseling Standards. Visit our site at: http://www.vacareerview.org/ for more information.

Teacher Workshops

We are excited to offer CEU (Continuing Education Unit) credits for teachers in conjunction with the KTU program.
Teachers 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-6th 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, or others, interested in STEM teaching.

Workshops

Day 1 (day before KTU program)
- Interact with Scientists, Technology Experts, Engineers, and Mathematicians
- Includes a 4-hour interactive hands-on training

Day 2 (day of KTU program)
- You interact with KTU students at learning stations to deploy what was learned in Day 1
- You watch a lecture given to kids on topics related to Day 1, led by a world renowned research scientist
- You will learn how to incorporate fundamentals and concepts from the lecture and training into your classrooms

Cost

Virginia 4-H is paying the registration fee for the first 10 participants for each workshop. Register early to hold your spot for March, and April! The cost per workshop is $30. However, if there is a hardship please let us know by emailing, Dr. Kristy Collins.

Feb Teacher Workshop

"Hot Topics in Cool Science"

Workshop instructors: Louise Huffman and Dr. Kathleen Jamison

February 25, 12:30-4:30pm & February 26, 9am-4:30pm
CEU credits offered- 1.1

Through the compelling story of ANDRILL's research in the extremes of Antractica, participants will be introduced to cutting-edge climate change science and "Antarctica's Climate Secrets" hands-on materials.

Please visit
http://kidstechuniversity.vbi.vt.edu/
for further information, and to register for the next KTU Teacher Workshop.

KTU is a program at Virginia Tech with one primary goal – sparking kids' (ages 9-12) interest in --

Science, Technology, Engineering, and **Mathematics**

KTU 2011 Program Dates

Jan 29 | Math Day
Feb 26 | Engineering Day
Mar 26 | Technology Day
Apr 09 | Science Day

Contact

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THE FUTURE OF SCIENCE

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We look forward to seeing you in March!

KTU
Kids' Tech University