

Sussex County Charter School for Technology

CHARTER NEWS

Building Future Leaders in the STEM Community

OPEN HOUSE NOVEMBER 8TH

IMPORTANT DATES:

August 24th - PTO Meeting @ 6pm
September 7th - SCHOOL STARTS
September 11th - BOT Meeting @ 5pm
September 21st - PTO Meeting @ 6pm

PRINCIPAL'S MESSAGE

Dear Parents and Guardians:

As the new Principal, I look forward to working with the dedicated staff at Sussex County Charter School for Technology to provide the best possible educational experience for your children.

I have a Doctorate in Education and more than 25 years of experience in education, business, and management, providing not only a strong educational background for your child, but also an understanding of how education and technology are important in the workplace.

Like the Sussex County Charter School for Technology, I am dedicated to excellence in education. I look forward to being involved in program development, curriculum planning, and teaming with teaching and administrative staff, as well as parents and students of Sussex County Charter School for Technology, to help our students achieve new levels of academic success.

Sussex County Charter School for Technology aims to provide a distinctive and dynamic technology-based program that promotes active learning and embraces multiple learning needs and styles in a challenging environment. Our courses will offer students the opportunity to engage in instructional environments that encourage curiosity and confidence, use technology to support the acquisition of knowledge, and create deep understandings in a collaborative atmosphere that will help them make a successful transition to high school.

On a personal note, I am married with an adult daughter and an 8 year old son. In my free time I am a volunteer severe weather spotter for the National Weather Service and I have a weather station at my home. I also enjoy weather

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BOARD OF TRUSTEES

The Board of Trustees meets the second Monday of every month at 5pm. We invite parents, teachers, students and staff to attend our meetings and to learn more about how our school operates and different ways to become part of our school community.

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SCIENCE STUDENTS AT SUSSEX COUNTY CHARTER SEND EXPERIMENTS TO SPACE

by Mary Lou DeCaprio

This past June 23rd, Mary Lou DeCaprio, Science and STEM* teacher at Sussex County Charter School for Technology, attended a once-in-a-lifetime event that any teacher would be proud to attend. At Wallops Space Facility, she watched her students' carefully designed experiment launch into space- literally! (Here's the link:<http://www.ustream.tv/recorded/105037008>)

Mrs. DeCaprio and a dedicated group of 6th graders at Sussex County Charter School for Technology (SCCST) in Sparta, New Jersey, were among a select group of students in the U.S. and abroad who were selected by idoodldu's Cubes in Space™ program to have their designed science experiments go up to space this summer. Cubes in Space™ (CiS), a global STEAM*-based education program for students (ages 11-18), provides a free opportunity to design and compete to launch an experiment into space on a NASA rocket or high altitude scientific balloon. Cubes in Space™, a program by idoodldu inc., in collaboration with NASA's Langley Research Center, NASA's Wallops Flight Facility and Colorado Space Grant Consortium, offers global design competitions for students 11-18 years of age to develop STEAM-based experiments for launch into space.

Used in formal or informal learning environments, students and educators are exposed to engaging online content and activities in preparation for the design and development of an experiment to be integrated into a small cube. Throughout the experience, students develop key 21st century skills; communication, collaboration, critical thinking and creativity.

Since 2014, Cubes in Space has flown nearly 400 experiments representing 1500 educators and over 20,000 students from 57 different countries. This year nearly 600 educators and thousands of students from 39 countries participated and proposed experiments for a space on a NASA sounding rocket or high-altitude scientific balloon mission. A total of 160 experiments were selected and were designed by students from Australia, Austria, Canada, Colombia, Ecuador, India, Mexico, Serbia, the United Arab Emirates, Uruguay, the and the United States of America.

This is the first time SCCST entered and participated. After learning about this program while attending Educator Space Academy last summer, Mrs. DeCaprio was con-





vinced she had to implement the program into her lessons. Her administrators were very supportive of the idea and gave her the go-ahead. Mrs. DeCaprio split the students into groups of 4 or 5. They had a deadline to meet that was set by idoodledu,inc. and adjusted their countdown daily. Experiment variables and/or engineering design steps, hypotheses, description, and analysis had to be accounted for in the proposal. An additional expectation was to plan, if the experiment was selected, how results would be reported and how those results could make a difference or solve a problem in the community or even world. Initial student proposals were sent in and reviewed by a panel of judges made up of aeronautical engineers, astronauts, and teachers. Of the 18 groups that were working on designs, 8 groups met the deadline and submitted a proposal. Of those, 3 groups made it to the second round.

From start to finish, students spent approximately 3-and-a-half-months applying the curriculum and developing their experiment proposals. Many lunch hours, in addition to time spent in class, were devoted to revising and completing proposals in the hopes that the second round would prove to be a successful one. The hard work paid off and all three of those proposals were selected. The principal visited the class to hear the students' proposals and congratulate the students on their hard work.

The payload kits arrived mid-May, and the winning members busily prepared the official experiments. The biggest constraint students have to follow in this program is cube size. The cube measures 4 cm x 4 cm x 4 cm and the payload mass for each cube's contents must be 53 grams +/- 2 in order to meet the payload limitations of the entire rocket or balloon. The objective of the Sounding Rocket (SR) experiment, called "Crushing Popcorn" was to send up pre-popped popcorn to determine whether or not the 20-G force of the rocket will affect the integrity of the popcorn allowing it to be edible and enjoyable in the Space Station. "Sending a Kiss to Space" will calculate the possible effects of cosmic radiation on chocolate, using a radiation app to measure the before and after data. Lastly, "Magnets in Space" will examine the possible change in Gaussian magnetic field strength as magnets travel through cryogenic temperatures in the stratosphere.

Students have not only reflected deeply on the scientific method while tapping their creativity, but have learned the importance of effective communication, "pitching" a proposal, meeting deadlines, and, best of all, trying to make a positive difference. Mrs. DeCaprio notes that "listening to the students discuss the payload of the nose cone, the G-force during launch, and arguing about possible interfering variables, has been an 'out-of-this-world' experience" for her and the kind of authentic, student-centered engagement that educators dream of. DeCaprio added that Amber Agee-Hart, Cubes in Space™ Founder and Debbie Ross, Operations Manager, were incredibly supportive and accessible to aid teachers every step of the way.

The SR experiment, "Crushing Popcorn" did its parabolic

https://en.wikipedia.org/wiki/Terrier_Orion#/media/File:Terrier-Improved_Orion_sounding_rocket_launches_RockOn_2011_experiments_2.jpg

launching rocket launch on June 23, 2017 from NASA Wallops Flight Facility outside of Norfolk, Virginia. Mrs. DeCaprio and her husband attended the 5:30 a.m. momentous occasion, which launched promptly from Chincoteague Island... what a thrill to see the Terrier-Orion rocket launch 73 miles into the atmosphere! It went up in a blink of an eye, using 85,000 Newtons of thrust during the first four seconds of motor burn to send up the payload.** Its two stages after launch were brightly visible, as can be seen in the video.

Teachers who participated waited until the payload was carefully re-integrated before being able to retrieve the experiment to take home for analysis.

Next up, the high-altitude scientific balloon will take up our other two accepted experiments, "Sending a Kiss to Space" and "Magnets in Space", in late August 2017 from NASA's Columbia Scientific Balloon Facility in Ft. Sumner, New Mexico. Please stay tuned for the Ustream event!

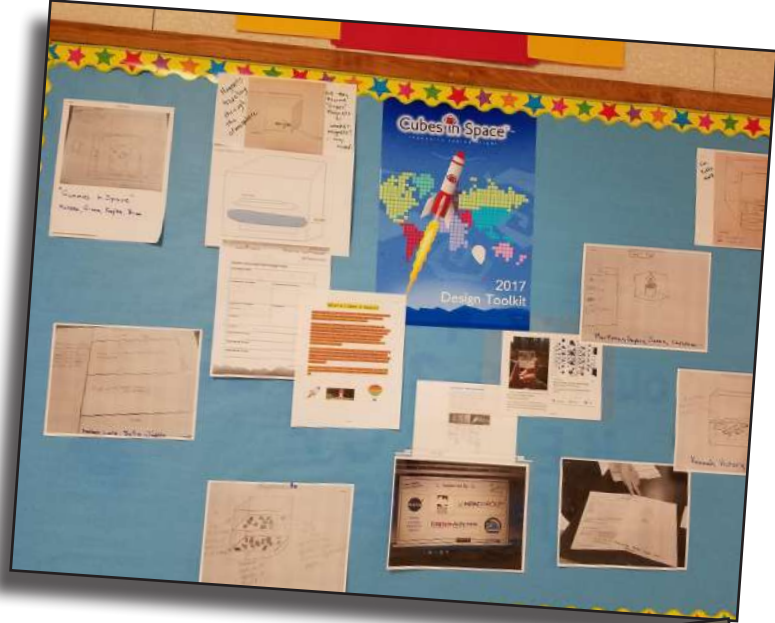
For more information about Cubes in Space, please visit www.cubesinspace.com or www.idoodlededu.org

idoodlelearning is proud to partner with the Colorado Space Grant Consortium with support from NASA's Science Mission Directorate and Sounding Rocket Program Offices to bring Cubes in Space™ to this new generation of future inventors, scientists, engineers, artists and innovators.

References:

*STEM: Science, Technology, Engineering and Math; STEAM: Science, Technology, Engineering, Art and Math

**https://en.wikipedia.org/wiki/Terrier_Orion



Summer STEM Workshop at Sussex County Charter School for Technology

Over a two week period, from July 10-21st, 6th and 7th grade students from all over Sussex County participated in a STEM Workshop at Sussex County Charter School for Technology (SCCST) in Sparta, NJ. They used the Engineering Design Process, creativity, and innovation to complete design projects involving hands-on investigations in the areas of Computer Science, Manufacturing, Robotics, Materials Science, Finance, Biology, Biotechnology, Chemistry, Physics, Math, and Engineering. Students took on the roles of STEM researchers, learning about chemistry, physics, mathematics, and more through exploration, investigation, and experimentation.

The workshops were designed and led by Dr. Michael Schwartz, Lead STEM teacher at SCCST. Assistance was provided by Michael Altmann and Francesca Cruciata (current teachers at SCCST), Reiss Little and Paul Brandt (Freshman at Sussex Tech High School), Trevor Wolfe (Senior at Hackettstown High School), and Mackenzie Baker (Current 7th grader at SCCST)

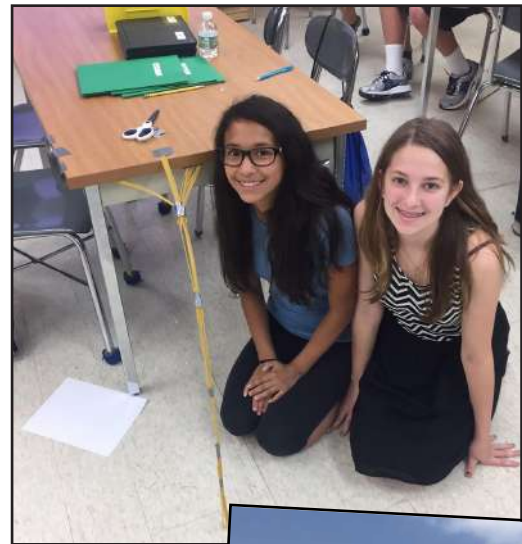
Some of the major projects included the design and build of; wind turbines to generate electricity, shipping

containers for a medication to be shipped to the tropics, and bridges using only a pizza box. One day was dedicated to Forensic science, and workshop attendees explored fingerprinting, blood and DNA typing, and paper chromatography to analyze ink.

Students building and testing medicine containers that must protect an egg from a fall of 10 meters and maintain an internal temperature below 30 degrees Celsius under a heat lamp

In addition to these projects, students participated in team building activities and challenges. One of which was building the longest cantilever structure using spaghetti and duct tape. Others included exploring and understanding the steps of the Engineering Design process and building of towers from paper.

In addition to offering STEM class every school day throughout the year, SCCST plans to expand their offerings for next summer to include additional topics and weeks. Please continue to check our website at www.sussexcharter.org and our Facebook page at www.facebook.com/sussexcharter



*Left and middle photos: Students building and testing medicine containers that must protect an egg from a fall of 10 meters and maintain an internal temperature below 30 degrees Celsius under a heat lamp.
Right photo: Two workshop participants just prior to measuring their cantilever build.*

ON THE COVER



One of the highlights of the summer STEM workshop was a visit by Christopher Schaefer, of Aerial Innovative Revelations. Mr. Schaefer talked to the students about the real world applications of drones, and the laws and safety behind their operation. Students had the opportunity to pilot a drone and were able to witness the operation of a smart drone that was flown above the school's campus.



IT'S AN EGG, IT'S A TURD, NO, IT'S AN...

by Mrs. DeCaprio

.... owl pellet! - the undigested pill of bones and fur that owls and other birds of prey spit up several times a day. Sounds lovely, doesn't it? Last June, before school ended, the 6th grade students discovered that as unpleasant as that sounds and appears, it gave them a bounty of treasure to uncover. 6th graders wrapped up their yearly lessons with an owl pellet dissection.

With partners, one broke open and gradually pulled out the contents of either a mouse, mole, vole or small bird, while the other was tasked with cataloging and identifying the anatomical bones to ultimately conclude what type of animal or animals had been the victim of the owl's meal. Because owls swallow their prey whole, they have an additional digestive organ that humans do not, known as the proventriculus, found above its stomach, that holds back the indigestible parts, then sending the digestible parts off to the "stomach", or "ventriculus" in an owl's case. Some students were delighted to find multiple prey within the pellet!

This lab activity, preceded by a virtual pre-lab on www.kidwings.com to introduce the students to what to expect in the real pellet, focuses on discovery and student-centered learning. Students then follow the virtual lab with an actual one, reinforcing their new knOWledge hands-on. Student teams worked together to the Latin beat of the "Owl Pellet" song to reassemble the discovered prey's skeleton onto a chart, parts such as femurs, vertebrae, jaws, skulls, tibias, humeri, etc. and placing them where the anatomical parts would belong in such prey, basically re-constructing as them as paleontologists do with fossil remains.

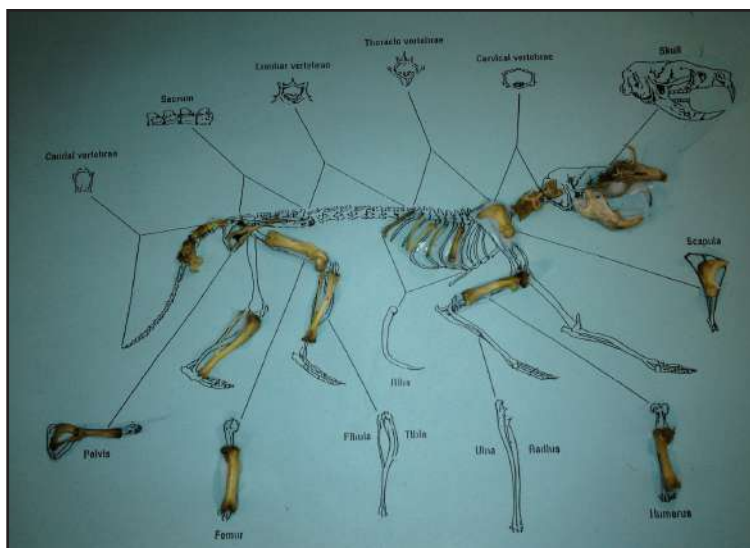
Students found themselves debating like forensic scientists as they pieced together the prey's anatomy, simultaneously learning the names and functions of the comparable parts also found in the human anatomy. The



alamy stock photo

sporadic healthy disagreements with each other about whether a tiny bone was a tibia or pelvic bone, and getting frustrated at the almost infinite number of tiny vertebrae to secure to the chart was very satisfying for both adults in the room to observe. It was delightful to hear the students trying to defend why one thought a particular skull and jaw belonged to a vole while the other thought it a bird's head, as they compared them to the official animal skeletal charts.

In addition to deepening their understanding and appreciation of skeletal anatomy, this multi-tiered lesson gives students the opportunity to reinforce their understanding of the energy pyramid and the transfer of energy in an owl's particular ecosystem, while applying lab safety measures and becoming acquainted with confident use of lab dissection tools. As the song by Science Explosion says, "Now this (process) may seem gruesome to you,... he (the owl) did it for the sake of ecology!"



PTO NOTES

Questions? Contact us by email at sussexcharterpto@hotmail.com.

Used Uniform Sale on until August 31st!

forecasting as a hobby and I have a weather blog that can be found at edgeweather.com or on the Edgeweather app in the Apple App Store or in the Google Play Store.

As Principal of Sussex County Charter School for Technology, my door is always open and I welcome your input. Please feel free to stop by and talk with me or contact me by email at medgerton@sussexcharter.org to discuss any

concerns, suggestions, or ideas to help make this the best year possible. I look forward to working with you and your child.

Sincerely,
Dr. C. Mark Edgerton II
Principal

EXECUTIVE DIRECTOR'S MESSAGE

Each new school year we return to a familiar routine. We go from our summer activities and vacations that vary with little routine, to the majority of students' time spent at school in a rigid time oriented structure. The new school year's routine is an opportunity to start off with good habits. Researchers have stated that it takes between twenty one days and two months to form a habit. What better time to start a good habit (or habits) than the start of the school year?

The first step in deciding a habit to adopt is considering your goals. We all want to start the year successfully and now is the time to begin taking the small steps to set and achieve goals that will lead us to a prosperous journey over the next ten months. When it comes to setting goals, you can choose an area of weakness that handicapped your success in the past. You can select something that will make you more efficient. Regardless of your choice, you will need one key ingredient in forming a new habit, discipline. Webster defines discipline as training that corrects, molds, or perfects the mental faculties or moral character. Admiral William McRaven, in his new book *Make Your Bed*, references the importance of discipline in our everyday lives. The simple habit of making ones bed in the morning represents discipline. A small act that can symbolize the discipline of starting your day off with order, starting the day doing your best and the intention to build upon this foundation with more self-mastery. One example you could apply to the school year would be mastering organization. Taking the step of keeping a daily agenda to record homework and school reminders involves conscious discipline that could help you perform better and achieve more as a student throughout the school year.

So, in closing, welcome back to the new school year. What new habit can you start today for a successful school year? If you are not sure where to begin, or need more time to reflect on a habit, start with making your bed. At best that simple act may lead to more self-discipline. At the least...it will make your parents happy.

- Noreen Lazariuk

BOARD PRESIDENT'S MESSAGE

On behalf of the Board of Trustees, I would like to welcome the entire SCCST community back to school as we get underway with the 2017-2018 school year. In the past two years, we all saw many changes that set us on a path towards new levels of success. This past Spring and Summer our students were able to launch their science experiments into space. This summer we had a successful STEM camp and enrichment program. Starting in September, we will welcome a few new staff members, including our new Principal Dr. Mark Edgerton, to our school. These highly qualified individuals will not only keep us on our trajectory, but help our school move to new heights.

In the coming year, we hope to involve our school in raising the level of discussion concerning the opioid crises that is facing the nation in general and Sussex County in particular. We will be partnering with local organizations in this effort. We will continue our efforts in STEM education, and continue to offer over a dozen in school clubs and after school sports programs. The Board of Trustees will be looking into ways that we can fund more after school activities including the bus transportation that would make an expanded program possible. That effort will take the involvement of the entire school and those in the wider community. To that end, I urge you all to become involved in our school to whatever extent possible. Students, be active in your learning in class, and also out of class. Take advantage of our clubs and sports teams, and also those programs in your own home towns. Parents, there is a very active and supportive PTO that needs your involvement. They meet once a month, and their efforts are invaluable to our students and the school as a whole. Everyone should feel invited to our monthly Board of Trustees meetings. We meet on the second Monday of each month at 5pm. There are two places in each meeting in which members of the public are invited to address the Board. We really do want to hear from you, not only when you have concerns, but when you have suggestions for improvement. Let's all get started on a great year!

- Dr. Edwin Selby