



TEACHERS AT EQUIPD BROADER IMPACT DAY JANUARY, 2020

EQUIPD



[HTTPS://EQUIPD.MSE.UFL.EDU](https://equipd.mse.ufl.edu)

Broader Impact

The EQUIPD grant held two Broader Impact days for teachers this semester, one in North Florida and one at the University of Florida. Working with the UF Engineering Experimental Station (Flex) in Sarasota, and the North Florida Educational Consortium (NFEC), regional teachers attended lessons including; Core Concept Model Building, System Thinking in the classroom, Scratch Computer programming, and the Lending Library of Experiments. Held in partnership with Microsoft, Texas Instruments, Vernier, Pasco Scientific, Dr. Richard Hennig, over 100 teachers were exposed to cutting edge concepts from the grant to bring back to their classroom practices. The UF hosted event was held January 6, 2020 and included a lunch sponsored by the Herbert Wertheim College of Engineering, as well as speakers from student professional organizations (NSBE, SHEP and SAE)

their own sensors to measure temperature.

EQUIPD also partnered with the Herbert Wertheim College of Engineering K-12 Outreach to help host two Student days along with the Lending Library of Experiments. Girls Engaged in Engineering K-12 Outreach, hosted over 100 students in the fall and spring. There were many students from the Sarasota region who attended.



St. Johns County teacher works to develop an understanding of how to use the motion detector for student learning experiences.

The second event was held at St. Johns River State College in St. Augustine where over 50 teachers from North Florida School Districts attended workshops. This session additionally partnered with Edios Learning to allow teachers to build



Students from Florida Schools at EQUIPD Broader Impact Day with the Lending Library of Experiments

FIELD TRIPS

EQuIPD's own Max Vega discusses his engineering internship at Slice Engineering



>60%

Number of intervention teachers who have signed up for one or more state STEM endorsements including K12 computer science, math, physics, engineering, technology and sciences.

45

The number of field trips planned by EQuIPD Instructional Specialists for teachers since Sept, 2019, including four virtual field trips.

6

Teacher Bootcamps will be held this Summer Virtually and will be grouped by Cohorts. Training will be focused on Deeping EQuIPD Grant goals and bringing in assessment of lesson effectiveness through use of video analysis protocol developed by BSCS.

CTE - June 22-26

Elementary -June 15-19, July 6-10

Middle School/HS - July 13-17, July 20-24

Alternative date - July 27 - Aug 1

FAST FACTS

Webinars: Preparing for Remote Learning



15

The number of webinars held by EQuIPD in response to teachers being asked to move to remote learning. Webinars included Flipgrid, ZOOM Basics, ZOOM FERPA, Schoology, Google Suite, Nearpod, Remote Inquiry Practices, TEAMS.

Over 100 teachers across the state attended webinars hosted by EQuIPD



Heather Magill from Palm Beach County won the prestigious Dwyer Award for her work with students.

Frank Traina, a CTE teacher in Hillsborough County, is having great success with student engagement online. He has surveyed his students as to why they participate in his class but not others and found that it has a lot to do with how information and assignments are presented. He has offered to do a webinar for EQuIPD teachers this summer



Florida Teachers working with graduate students for the Lending Library of Experiments at Broader Impact Day



Teachers from St. Johns County at a Saturday Teachers workshop using Arduino and Grove Sensors for use in CTE lessons.



The 2020 National Science Foundation (NSF) STEM for All Video Showcase is an annual online event. Each year, it hosts between 100-200 three-minute video presentations from federally funded projects that aim to improve STEM (Science, Math, Engineering, and Mathematics) and computer science education.

The Video received great comments and almost 1200 views. You can watch the video at <https://stemforall2020.videohall.com/presentations/1800>

Making Math Relevant in Palm Beach County Schools

By Krista Dulany

When schools closed at the end of March, all teachers had to navigate into the foreign territory that was delivering their content using an online platform. The EQUIPD Instructional Specialists were standing by to help our intervention teachers as they began the process of organizing their Google Classrooms to flow for virtual learning, scheduling online class meetings, and figuring out the logistics of recording lessons.

One of our teachers in Palm Beach County, **Grant Gellermann**, took this as an opportunity to dip into his creative side to make learning pre-algebra fun and interactive for his 8th-grade students at Palm Springs Community Middle School. Grant transformed his lessons into fun-paced videos that connect math concepts to common items found

around the house or in a favorite video game. Grant took advantage of online programs such as Padlet and Flipgrid to get kids engaging in the lesson and sharing their ideas with their peers in ways they have not done before.

When learning to calculate the volume of three-dimensional shapes, he challenged his students to find and share pictures of cylinders found in their homes into Padlet. He also encouraged his students to calculate their respective volumes. The students were able to see what their peers shared as examples around their house during a time where they aren't able to see each other face-to-face.

Another program Grant has added to his online toolbelt is Flipgrid. Grant used Flipgrid to review concepts from the beginning of the year in the context of a very popular video game, Minecraft. He was able to make the connection to cubic roots by connecting calculating the volume of cubes of various sizes using different materials shown in the image taken from the video. At the end of the video, he revealed a mystery cube composed of two different materials in alternating layers and challenged his students to find the volumes of the respective materials making up the cube. Students were encouraged to record responses demonstrating how they calculated the volumes using Minecraft, paper cubes, or any manipulatives students have around the house. We are excited to see how his students figure out how to find the volumes of the mystery cube!



Grant Gellermann's Minecraft simulation for volumes of 3D shapes. Students were able to combine love of Minecraft and mathematics

CTE INSTRUCTOR & STEM ADVOCATE

By Xavier Rozas

A product of the Orlando Public Schools and a proud UF Gator, Justin Thornton has, like many CTE teachers, leveraged his post-secondary education, industry experience and his passion for innovation and technology to engage students with inquiry-rich, project-based learning experiences for students at Gamble Rogers Middle School in St. Johns County. In his work with the EQUIPD Instructional Coaching Team, Mr. Thornton has embraced systems thinking and concept model development to assist students in his Computer Applications in Business (CAB & CAB II) & Career & Technical Educations (CTE) courses as they work collaboratively to design, deploy and refine 21st Century solutions to address authentic industry and real-world challenges. Thoughtful lesson planning, rigorous coursework and differentiated instruction underscore Mr. Thornton's approach to student learning and career readiness.

However, it is his genuine interest in his students' academic growth and personal development that drives him to continuously reflect on his practice and to seek out innovative instructional strategies that immerse students in critical thinking and authentic inquiry using cutting edge tools and digital media solutions that will soon be ubiquitous in a skills-based, global economy. The future is looking bright for the Stingrays!



St. Johns County Teacher Justin Thornton

Technology Enhances Education in the Classroom in Sarasota School District

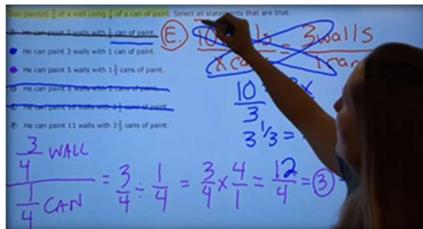
By Jared Carter

Lindsay Rowe is a seventh-grade mathematics teacher at Booker Middle school. Ms. Rowe has always been interested in using technology in her classroom, provided that it enhances the quality of education she can deliver to her students.

Since joining the EQUIPD project, Ms. Rowe has continued to adopt technology in her classroom in order to better support the scholars in her classroom with a wide variety of previous mathematics experience.

Together with her EQUIPD coach and support from Microsoft, Ms. Rowe has implemented Microsoft Teams in her classroom. Ms. Rowe encourages

her students to leverage the immersive reader feature built into Teams, which can translate text, read text aloud, and generate pictorial representations of many common words.



Many of Ms. Rowe's students are learning English, so the ability to read aloud and translate on demand allows Ms. Rowe to spend more time teaching and less time re-reading. Additionally, Teams allows her students to collaborate and share their thinking both in the classroom and remotely. We are grateful that we get to work with a teacher as dedicated and curious as Ms. Rowe

HILLSBOROUGH EDUCATOR REACHING FOR THE STARS

By Christine "Angel" Danger

In February, Jessica Strauss a third grade teacher in Hillsborough County presented her work using sensors and probes with student at the Space Exploration Educators Conference (SEEC), a conference at the Houston Space Center designed to help educators enhance their science classroom with space education.

Jessica is part of the SEEC Crew, a cohort of teachers from around the country that help disseminate and motivate people to use space education. This will be her 4th time visiting the event and her third year as a presenter. This year she will be working with a NASA specialist named Paul Boehm on two lessons involving space suits. Our new one this year

involves the science behind the suit so she thought the sensors would work great to show how it reflects heat and UV (thermometer and light sensors).

Jessica has a website of her own where she disseminates information she learns in her work with NASA and makes it available to other teachers. <https://straussjessica.wixsite.com/teachingospace>

Jessica was also nominated for a teaching award from Sun n Fun Aerospace Expo. The Aerospace Center for Excellence (ACE), a 501(c)(3) non-profit, has emerged as a nationally recognized leader in STEM-related and aerospace education through its various learning centers, outreach programs, scholarships, and summer camps aimed at engaging, educating and accelerating the next generation of aerospace professionals.

Jessica Strauss teaches at Mabry Elementary and as an example lesson she used temperature sensors to give her students a deep understanding of how phase changes occur in water. She engaged her students by asking them if adding ice to an already cold glass of ice water could make the water colder. Most grade 3 students believe that adding more ice will make it colder. Her students explored this concept by adding ice to water and stirring while measuring the temperature with sensors. They were surprised when no matter how much ice they added, the water remained at 0 degrees Celsius. This helped them to understand that water freezes at 0 degrees Celsius and cannot be colder without becoming a solid.



Jessica Strauss At SEEC Conference

Exploring Light-It's Elementary!

By Christine "Angel" Danger



Tina Pipp at Deer Park Elementary in Hillsborough County came up with a way to use sensors to make the concept of light absorption and reflection clear to her students.

She created a light laboratory using a cardboard box, light sensor, flashlight and a variety of colors of paper. The boxes had two holes in the top, one to shine the flashlight through and one to put the light level sensor into.

Her students placed black paper, white paper, green paper, aluminum foil, and a mirror into the box, closed the box and measured the amount of light reflected from each.

The graphs and data made it very clear how much light was reflected and absorbed by each color. This simple activity made a concept that was abstract into one that is very concrete and easy to understand for Tina Pipp's third graders.

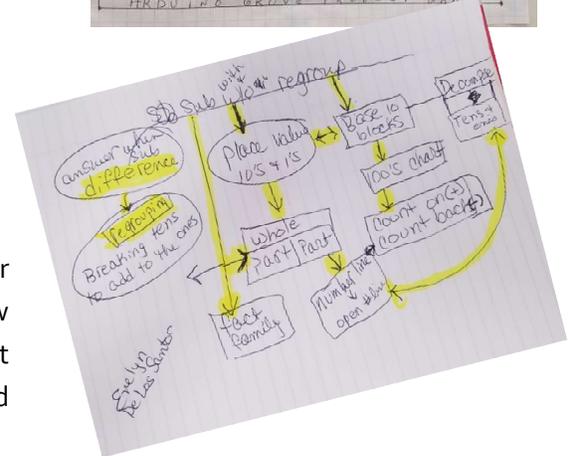
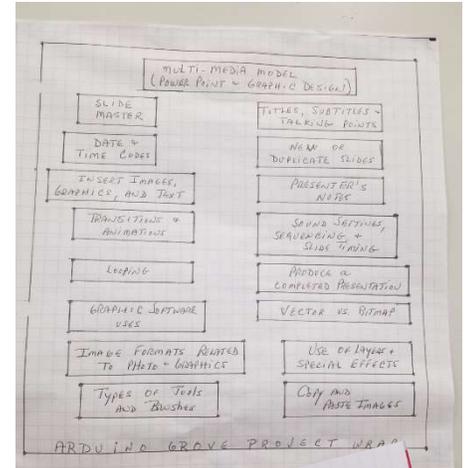
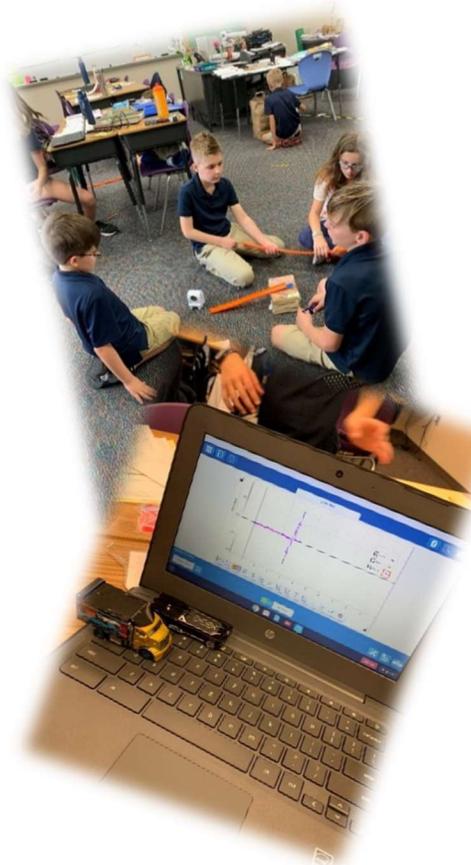
MANATEE STUDENTS IN MOTION

By Seleka Kerr

Just before a worldwide pandemic sent us all to our homes and saw schools close for the remainder of the school year, a curious group of 4th graders in Karen Nikla's class at Willis Elementary in Manatee County took on the task of discovering Force and Motion using motion sensors!

Students graphed their results and tested different objects to determine the impact of force on its' motion.

Another group of students used sensors and probes to deepen their conceptual learning regarding how different objects have different temperatures in varying setting and circumstances



Models in Action

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