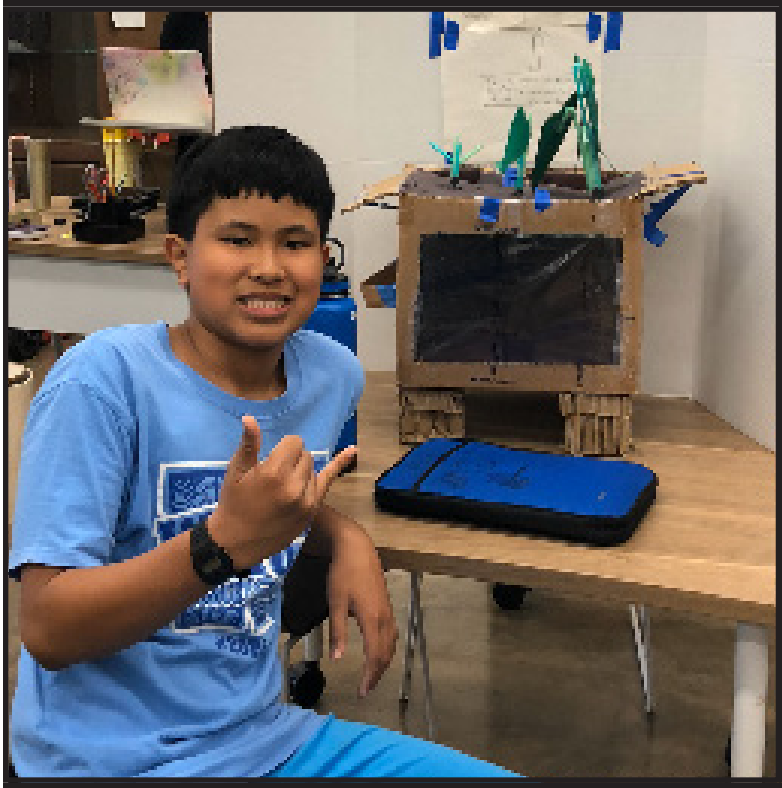
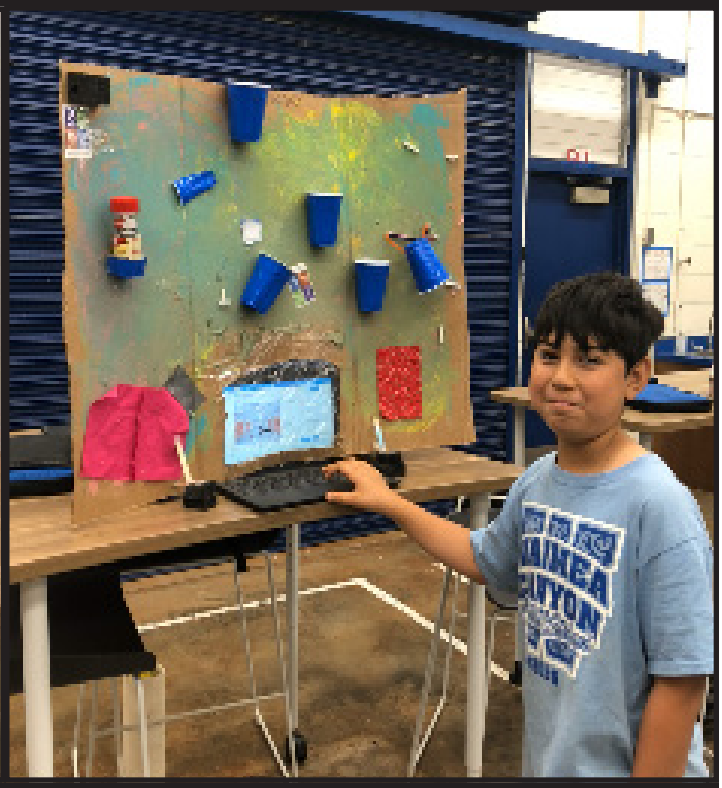
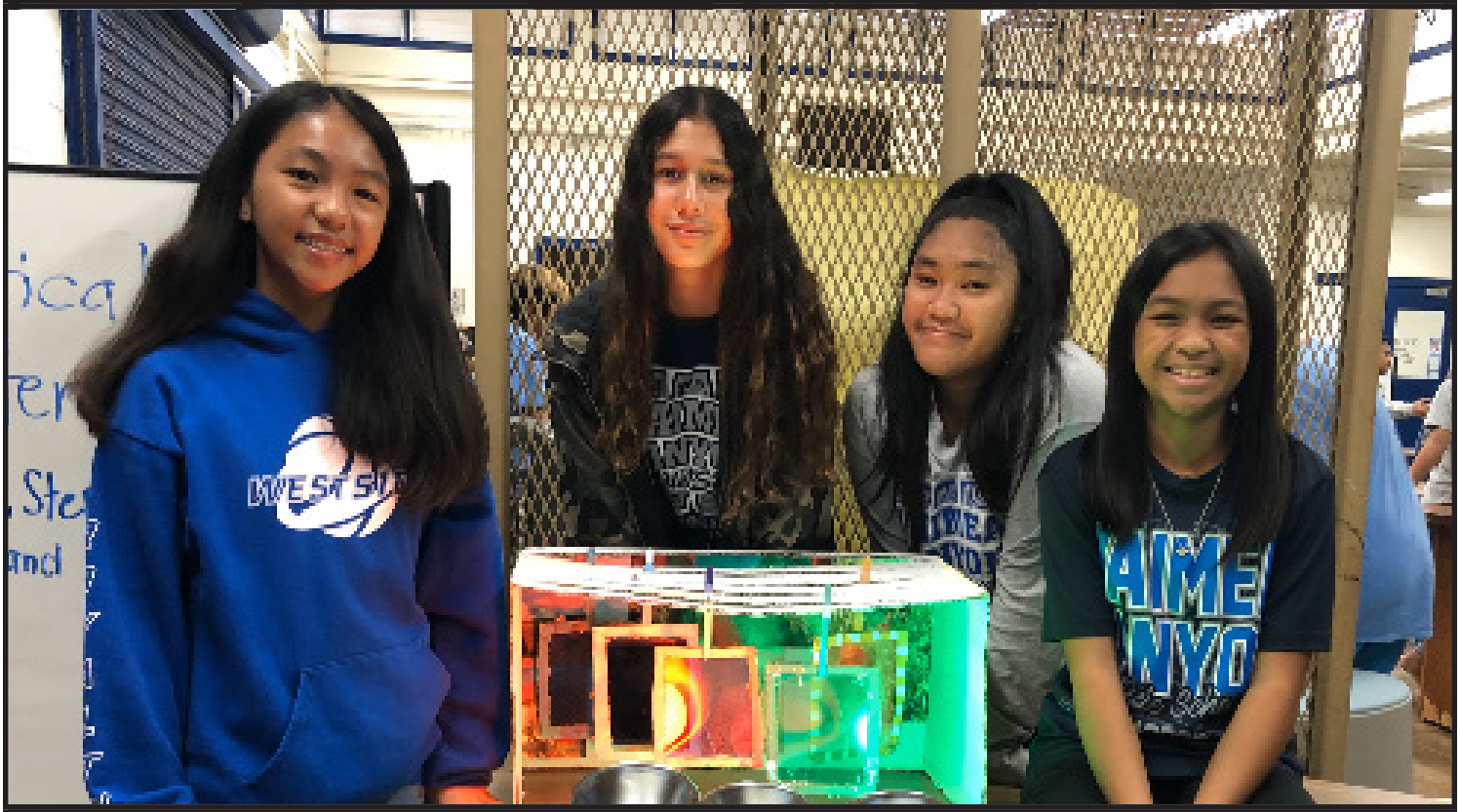
KCoScC NEWSLETTER

KAUAI COMMUNITY SCIENCE CENTER

APRIL 2020







KAUAI COMMUNITY SCIENCE CENTER IN 2020

In this Kauai Community Science Center Newsletter get an update on the Students Sharing Science pilot project. Mrs. Deborah Rowe's Integrated Science Class students at Waimea Canyon Middle School made a lot of progress developing their "Big Ideas" into prototypes this quarter. Learn more about all of the "Big Ideas" and the ones pictured on the cover in "Student Generated Content" on page 4.

The prototype development process was greatly enhanced by the visit of Adrienne Testa, Vice President of Museum Experience from The Sciencenter in Ithaca, NY during the first week of February. See more about Adrienne's visit in "Ithaca Visits Waimea" on page 6.

Almost 20 protype exhibits were on display for an initial prototyping session with WCMS Teachers in early March. We really appreicate all of the teachers that volunteered their time to evaluate the prototypes. You can see more about prototyping in "It's Showtime!" on page 8.

Students also benefitted from the support of other professionals on Kauai and beyond. Learn about our collaboration with Rich O"Reilly from Kauai Makerspace. Rich provided OnShape CAD training for all 52 students and also provided other design and technical support. There are even more professionals that partenerd with us and you can learn more in "Meet our PalS " on page 10.

Although the activities for the rest of school year are uncertain due to the COVID-19 pandemic, we are proud of the students' hard work and accomplishments. No matter what the next steps may be, the students have demonstrated that the concept of student generated content based on their interest results in an amazing diversity of exhibits ideas. These topics will appeal to the community and serve as rich content for KCSC exhibits and activities into the future.

We wouldn't have had any content for this newsletter without all of the students and the Students Sharing Science Leadership Team shown on page 3.

KCSC and the Students Sharing Science pilot program would not be possible without the support of a grant from the County of Kauai.

Mahalo to everyone involved!

FOLLOW US & LEARN MORE

STUDENTS SHARING SCIENCE
LEADERSHIP TEAM

Deborah Rowe
SCIENCE TEACHER
WAIMEA CANYON MIDDLE SCHOOL

Deborah Rowe has been a Science Teacher on Kauai for 8 years at both Chieffess Kamakahelei and presently, Waimea Canyon Middle School for the last six years.

It was Deborah Rowe who developed the Integrated Science Class at Waimea Canyon Middle School. Her vision was to have a class where students created hands-on science activities that would ultimately create a science museum setting for others to enjoy and explore.

Deborah's contributions have been immeasurable. She led the students and KCSC through this whole experience. Her project-based learning activities and assignments made the Integrated Science Class come to life.

For example, Deborah introduced the students to the concept of project management as a way for the project teams to organize their work. This a tool used in many "real world" scenarios to manage projects and is a great tool to introduce the students to in middle school.

KCSC cannot do their job without the support of educators and having such an amazing educator is invaluable.

Adrienne Testa
VICE PRESIDENT MUSEUM EXPERIENCE
THE SCIENCENTER, ITHACA, NY

Adrienne Tests is a professional Exhibition Designer and Interpretive Strategist. Prior to her role as Vice President of Museum Experience at the Sciencenter in Ithaca, NY she completed a MFA in Museum Exhibition Design & Planning and has also worked at the Hands-on Children's Museum in Olympia Washington and the Museum of Life & Science in Durham, NC.

Adrienne brought the "Big Idea" concept to the Students Sharing Science pilot project which has been a foundational element of the program and KCSC.

The students went through the very same design process and some of the same challenges that professionals face. The students also had the opportunity to learn about some of these "real world" experiences. When Deborah introduced the students to project management, Adrienne arranged for the students to meet the exhibit project manager at The Sciencenter to learn first-hand about his job and have the opportunity to ask questions.

Adrienne is an amazing collaborator and demonstrates the incredible value of professional involvement in the learning process.

Sarah Styan
FOUNDER
KAUAI COMMUNITY SCIENCE CENTER

I started the Kauai Community Science Center in 2019. My goal was to establish a science center showcasing science and technology that is driven by students interests, supported by professionals and shared with the community.

It has been quite a whirlwind and I have learned so much from Deborah and Adrienne. They have both generously shared their expertise with me and the students. They have also made it a lot of fun for everyone.

We have also had amazing support from professionals in the community and outside of Kauai. Please see more details starting on page 10.

Although COVID-19 may have caused some interruption to the project, KCSC will continue to move forward, find ways to get these prototypes developed into exhibits and develop new projects that support the growth of the organization.

If you would like to know more or have any questions feel free to contact me, sarah@kauaicsc.org

STUDENT GENERATED CONTENT

EXHIBIT PROTOTYPES FROM OUR COVER & ALL OF THE BIG IDEAS

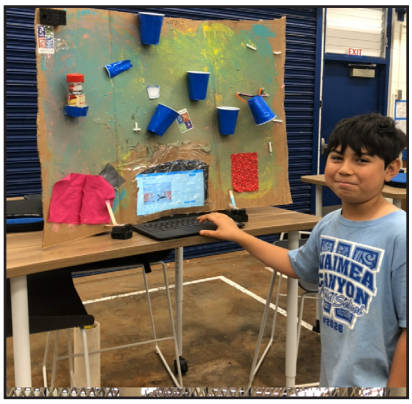
One of Kauai Community Science Centers goals is that all of the content for KCSC will be student generated, based on the interests of the students. No matter what the student's interest, there is science in it. KCSC wants to facilitate students learning more about their own interests and science at the same time.

The Students Sharing Science pilot project gave KCSC the opportunity to test this idea of student generated conent with the collaboration between Mrs. Deborah Rowe, the students in her Integrated Science Class at WCMS and Adrienne Testa from The Sciencenter in Ithaca, NY.

Students started developing their "Big Ideas" in the fall of 2019. From the wide array of interesting topics that the students came up with, project topics ranging from animal vision to weather patterns on Kauai, it was clear that the concept has merit. During the first quarter of 2020 the students further evolved their "Big Ideas" into protoypes.

Check out the complete list of projects that came from the 52 students involved in the two Integrated Science Classes ar Waimea Canyon Middle School on the facing page. These prototypes were all on track to become science center worthy exhibits and KCSC will continue to work on how to get at least some of them completed and shared in the community.

This prototype, How Does Your Taro Grow, describes the life cycle of taro. The student's design enables the exhibit to shows the stages of development above and below ground..



This student created a video game to test reaction time. The prototype was also designed with a busy background to add to the distractions.

This prototype, Fantastical Filters, came out of an interest in photography. These students were also able to learn from Christian Kahahawai, a professional photographer.

BIG IDEAS

STUDENT INTEREST	EXHIBIT NAME*	BIG IDEA
Animals	Do You See What I See?	How some animals see things differently.
Animals	Don't Worry Be Happy	About the Happy Face Spider of Kauai.
Art	Three LIttle Pigments	Primary colors of light and primary pigment colors
Basketball	Jumping for Joy	How high can you jump and why
Bey Blades	What Moves You?	What is momentum?
Cars	I Could Have Had a V8	What is a V8 Engine?
Cooking	Sciency Panckaes	What makes a pancake?
Dancing	How Do you GLOW?	How bioluminescence works.
Engines	What Drives You?	How does an engine work?
Fishing	Knotty Fishing	Science behind fishing knots.
Football	Put Your Head Into It	Do football helmets help or hurt?
Magnets	AMAZEing Magnets	How do magnets attract and repel?
Minerals	The Same but Different	Graphite and diamond carbon structures.
Motorcycles	Big Wheels Keep on Turning	Different wheels work differently
Music	Music to My Feet	How does a piano work?
Photography	Fantastical Filters	How do filters change the pictures we see?
Recycling	Al Washed Up	The impact of re-using silverware vs using plastic.
Taro	How Does Your Taro Grow?	The life-cycle of Taro
Video Games	How DoYou React?	What impacts reaction time?
Video Games	Basic Instincts	Why are video games addictive?
Weather	Comes Over to The Dry Side	What is the Westside of Kauai dry?

**** Not all of the projects had final exhibit names, but these are some potential names***

ITHACA MEETS WAIMEA

A WONDERFUL WEEK WITH ADRIENNE TESTA

Adrienne Testa, Vice President of Museum Experience at The Sciencenter in Ithaca, NY has been meeting with Mrs. Rowe's Integreated Science Class students since October. Initially she met with the project teams on Zoom video calls. Adrienne would get updated on their project designs and provide feedback and suggestions.

Adrienne had gotten to know students via Zoom, but in person she was able to help students in a whole new way and share her amazing protyping and exhibit design experience with them.

Adrienne learning about the, Knotty Fishing prototype.

It was wonderful to watch Adrienne and the students in action. She really helped them to move their prototypes from a concept to a physical prototype. She reminded us all that we just have to start to build sometimes to really get an idea of what our design is or should be.

During Adrienne's fist day, we saw this exactly when she worked with the students on their project related to the colors of light and primary pigment colors. The students had some ideas, but they had not started to build anything. By the end of the class period the students had a prototype cardboard "phonebooth" that would serve as the basis of their prototype. All of the materials were in the classroom and they made a lot of progress in that one class with some expert help. We saw similar transformations with other projects as well.

Adrienne meeting with a student via Zooom in November and meeting the same student in person in February.

KEEP IT SIMPLE

All of the students had amazing project ideas and the ways that they envisioned their prototypes of the exhibits were often elaborate and complex. Adrienne explained that at The Sciencenter, sometimes the simpilist ideas make the biggest impact with visitors.

One of her key messages for the week was "Simplify to Amplify". If you can use something simple to explain the scientific concept, the exhibit is likely to have a bigger impact on the visitor and facilitate them really learning while they are having fun with a simple activity. That is what science centers are all about, a place where people can have fun and learn about science at the same time.

Adreinne working with the , What Moves You, project designers.

SIMPLIFY TO AMPLIFY

SIMPLIFY TO AMPLIFY IN ACTION

This project, *Big Wheels Keep on Turning,* is a great example of simplifying the prototype to amplify the impact. These student's inital interest was in motorcyles. They decided to make their "Big Idea" realted what makes different designes of wheels better suited for different conditions.

Rich O'Reilly, President of Kauai Makerspace and a huge supprter of Students Sharing Science met with these students via a zoom consulting call. Rich introduced the students to a website called "Thingiverse". This resource got the students wheels turning. Rich clearly sparked their interest though sharing his expertise and introducing the students to a new resource.

Big Wheels Keep on Turning prototype on display during the protytping sessions in early March.

Initally the students planned to have a remote control vehicle of some kind that you could change the wheels on to see how the wheels made a difference on different surfaces. Their exhibit would also require different surfaces for the vehcile to negotiate. That is a really cool idea, but pretty complex when you try to think about how you would fabricate that. After a design consultation with Adrienne during her visit the students modified their exhibit design to create some cool 3D printed cars, each with a different type of wheels, and build a ramp so that people could roll the cars down the ramp and see the different effects.

This is a much simplier design. In addition the exhibit would be easier to fabricate, easier to maintain, and easier for the visitor to see and understand the "Big Idea" of how different types of wheels are designed to work differently, through the simple hands on activity.

What a difference a day with Adrienne makes!

These students created this "phonebooth" prototype exhibit in the course of one class period with some inspiration from Adrienne and their own ingenuity. Along with a lot of two prototyping mainstays, cardboard and painters tape.

IT'S SHOWTIME!

Students progress to a whole new level, building and sharing their prototypes.

Students look on while Mr. Skyler Lassman, WCMS science teacher, trys out their prototype, Music to Your Feet. WCMS teachers were the first prototype testers for the student prototype exhibits.

Back in October, there was a planned milestone that the students in Mrs. Deborah Rowe's Integreated Science Class at Waimea Canyon Middle School would complete exhibit prototypes in March.

That seemed like a lofty goal and a long way away as they were working on developing their "Big Ideas" back in the fall of 2019. Fast forward to March and there were nearly 20 exhibit prototypes completed in early March.

To get to this point took a lot of work on the students part and even more guidance and support from their teacher, Deborah Rowe, exhibit designer, Adrienne Testa from The Sciencenter in Ithaca, NY and all of the amazing professionals that have been part of the Students Sharing Science pilot project to date.

On March 2nd and 4th, during the two class periods for both of the Integrated Science Classes (there are two class periods with a total of 52 students) teachers from WCMS volunteered their time to come and try out the prototype exhibits and provide feedback to the students.

During these class periods the students also had the chance to try out the exhibits of their classmates. There was a lot of activity and learning happening over these two days and the students were able to make some significant and impactful adjustments to their prototypes. Enjoy the pictures that show some of the fun and a few of the prototypes.

We were planning to have a larger prototyping day on March 26th that would feature our professional collaborators from outside of WCMS as well as additional community members. Unfortunately, that prototyping session was cancelled due to the COVID-19 pandemic.

Everyone's work will not go to waste. KCSC is working to figure out ways to finalize the projects into exhibits so that in some way the larger community will get to experience the exhibits, learn from the students, and be able to recognize the work of the students and the professionals who supported them.
Stay tuned…

PROTOTYPING

STUDENTS SHARING SCIENCE PILOT PROJECT MILESTONES & TIMELINE

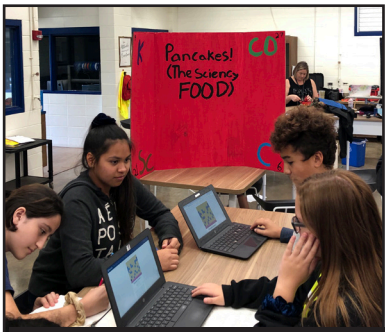
- Students introduced to KCSC at the end of October.
- Students explore the science in their interests and divided into project teams.
- Students selected a topic for their future exhibits.
- Students developed their "Big Ideas" and started the process of designing their prototypes
- Some students started building prototypes

- Students built prototypes
- Students had CAD training and other support from professionals on Kauai and beyond.
- Students presented prototypes to WCMS Teachers and classmates.
- *A prototyping session with professionals had to be postponed on March 26th*

- Students were due to omplete final exhibits by the en d of the school year.
- Final exhibits to be displayed in the community.*

2019 October November December **2020** January February March April May

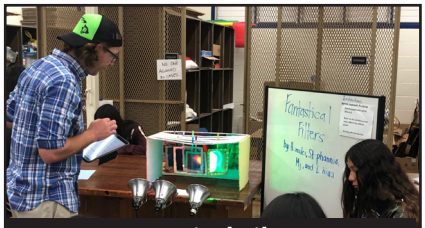
**** Due to COVID-19 pandemic, KCSC be seeking ways to work with the students or find other ways to complete the exhibits***



Sciency Pancakes

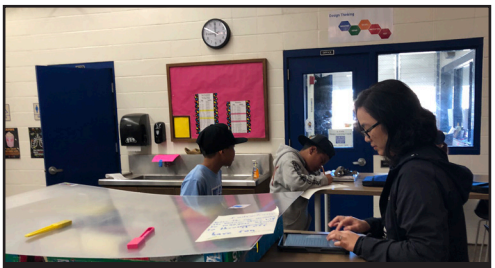

What Drives You


What Moves You



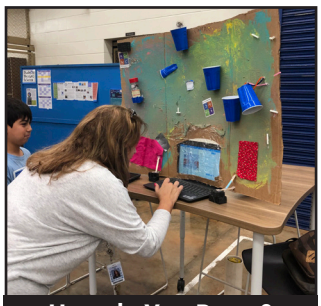
Fantastical Filters

There was a lot to show during the prototyping sessions in Mrs. Rowe's Integrated Science Class. Here are some of the prototypes. Thank you to all of the WCMS teachers who partcipated in evaluating the prototypes and give the students valuable feedback.


A MAZEing Magnets


Knotty Fishing


Come on Over to The Dry Side


How do You React?

MEET OUR PAIS

Professionals who support our Learners

15 P 13 Al 16 S

Professionals And learnerS

A program of Kauai Community Science Center

https://kauaicsc.org @kauaicsc

Kauai Community Science Center's "Big Idea" is to be a science center showcasing science and technology that is driven by student interests, *SUPPORTED BY PROFESSIONALS* and shared with the community.

The Students Sharing Science project has given us the chance to test how that works. It is crystal clear that having professionals engaging with the students and teachers is very positive in supporting and enriching learning for everyone involved.

KCSC was fortuante to have some amazing, generous and inspiring professionals work with the students and we are excited to continue to build these relationships and add more.

If you or someone you know is interested in working with us, please sign up on our website.

Rich O'Reilly, President of Kauai Makerspace has been a major supporter of KCSC and the Students Sharing Science project. He is a highly skilled engineering professional with expertise in CAD, 3Dprinting, design, fabrication and building just about anything.

Rich has worked in he classroom at WCMS and met with the students over zoom. He provided CAD training to all 52 students in OnShape, a professional grade CAD software that is free for students online. Not all of the students needed 3D printing for their projects, but it was great exposure for all of them..

He also consulted with some of the project teams who utilized 3D printing. For example, he printed a large replica of Kauai for the students whose project explains why the Westside of Kauai is dry. He also supported this group in design and fabrication of a mist system for the same prototype.

We cannot thank Rich enough for all of his contributions and his generosity in sharing his time and expertise with the students. Please check out Kauai Makerspace and consider becoming a member. They are an amazing organization, doing positive things on Kauai.

PROFESSIONALS

Kevin Arndt is also a member of Kauai Makerspace. Kevin is a retired software engineer who worked with a student in Mrs. Yamagata's 20% Science Fair Class at WCMS.

The Student wanted to use an Arduino board to design their engineering project for Science Fair, but he had no experience with this and either did KCSC..

Rich O'Reilly connected KCSC with Kevin Arndt and he generously came to the students classroom on multiple occasions, all the way from Kapaa to support the student and teach him about coding an Arduino board.

Kevin also provided the student with an Arduino board to take home so that he could practice between their sessions.

KCSC and the students are so fortunate to have professionals like Kevin to support them.

Christian Kahahawai is the owner of Kahahawai Photography, and was born and raised on Kauai.

Christina visited WCMS a couple of times to work with the student group that is developing a prototype exhibit, *Fantastical Filters*, that stems from their interest in photography.

Christian not only met with the students to discuss their project, but he brought along some amazing cameras and lenses for the students to try out. The students had so much fun experimenting and taking some amazing pictures. Christian even sent the pictures to the students afterwards.

Initially the students were uncertain and intimidated about meeting a professional photographer, but Christian's warm demeanor, generosity and passion for sharing photography melted all that away. The students were so enthusiastic after the visit and looking forward to another one.

Chuck Blay is a geoscientist with a Ph.D. in geology who lives on Kauai. He co-authored the book, "Kauai's Geological History: A Simplified Overview", that provides a comprehensive summary of the geologic origins of the Hawaiian Islands and the island of Kauai. He also established The Edge of Kauai Investigations, TEOK.

Dr. Blay came to WCMS to meet with the students developing the prototype exhibit, ***Come on Over to The Westside***, explaining why the Westside of Kauai is dry. It is hard to get a better professional to give you some insight than one that wrote a book on the subject.

The students had a great session with Dr. Blay as he described in great detail all of the special qualities of Kauai's geology and weather conditions that create the unique environments and weather that we have on our relatively small island. He even gave the students a copy of his book.

What a great opportunity for the students to be able to learn from and ask questions to the worlds expert on the subject matter of their exhibit.

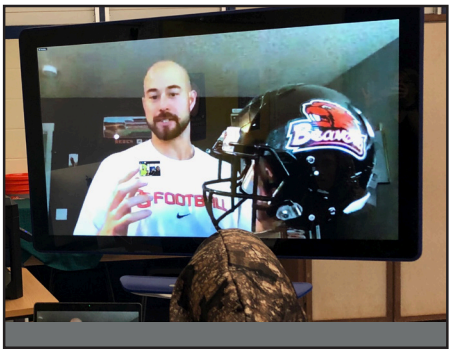
PROFESSIONALS

Ben Sullivan is the Energy and Sustainability Coordinator for the County of Kauai. Ben came to both of Mrs. Deborah Rowe's Integrated Science classes to talk with the students about climate change, waste management, recycling and renewable energy.

One of Kauai Community Science Centers goals is to help the students be aware of the importance of taking care of our planet. It is also important for the students to know what our county government is working on and that there are plans and strategies in place to mitigate the impacts of climate change, promote renewable energy and improve on waste management and reducing, reusing and recycling.

Ben covered all of these topics in his presentations and he did a great job of engaging the students and providing a lively and informative discussion.

Ben also shared about the Aloha+ Challenge and students even got a sticker, to remind them to register. We appreciate Ben taking the time to share his expertise with the students and raise their awareness.



Brandon Hardin is a former professional football player. He played safety for two seasons with the Chicago Bears. Brandin is a Kamehameha graduate and played football in college at Oregon State.

Through a connection via Mrs. Rowe we were able to coordinate a zoom call with Brandon and the students working on the prototype exhibit, ***Put Your Head Into It,*** that explains some of the science behind football helmets.

Brandon grew up on Oahu, now lives in Texas and is a founding member of ROCKSOLID, a company that provides soft- shell equipment for non-contact football, also called Flex Football. Brandon answered the students questions about football helmets, shared about his football career and also introduced the students to the softshell helmets.

It was an amazing opportunity for the students to learn from Brandon and he was very gracious with his time and is also a great communicator.

Valerie Saiki is the Kauai Community Coordinator for the Coalition for a Tobacco-Free Hawaii, a program under the Hawaii Public Health Institute. Valerie has been educating the Kauai Community about tobacco for the past 15 years.

Auntie Val came to Mrs. Yamagata's 20% Science Fair Class to meet with a student developing a vape detector for school bathrooms as an engineering science fair project. Auntie Val is also knowledgeable on toxins found in tobacco smoke and associated with vaping.

This student had done some initial research, but after meeting Auntie Val the student seemed amazed at the complexity and range of chemicals involved. The new information also helped the student to consider what were the most important elements for the monitor to detect.

Auntie Val is both a professional educator and knowledgeable public health professional. She is a great communicator and always eager to work with students; making her a great collaborator.

WHAT'S NEXT

WE'RE HAVING A CONTEST!

We need help developing a logo to use for our ***CLIMATE CONNECT*** initiative and we are having our first contest to help us find it. The contest is open to students in grades 6-12 and entries are due on May 31st. First prize is $200. Find all of the contest information on the KCSC website or email info@kauaicsc.org.

K Co Sc C

CLIMATE CONNECT

BUILD CONNECTIONS AND MAKE A CHANGE

STUDENTS SHARING SCIENCE

We hope to figure out ways that we can complete at least some of the student exhibits from Mrs. Rowe's Integrated Science class and get them on display by the end of the year. We will keep you posted. If you have any interest in supporting the project let us know.

BUILDING OUR CONNECTIONS AND WORKING DIFFERENTLY

Like everyone these days we are thinking about how we can work differently to find ways that we can supoort our goal of building a science center showcasing science and technology that is driven by student interests, supported by professionals and shared with the community. These are some of our ideas.

CITIZEN SCIENCE

Promoting Citizen Science through KCSC.
Citizen Science programs are a great way to learn and contribute to real research.
You can be a scientist from home at any age!

NETWORKING

To build our connections, opportunties and access to resources
With students, teachers and schools to see how we can collaborate
With other science centers, organizations and professionals
Let us know if you or your organization are interested in working with us.

VIRTUAL CONTENT

More virtual activities and content

WE'LL GIVE YOU AN UPDATE IN OUR NEXT NEWSLETTER IN JULY!

KCoScC

MAHALO THANK YOU SALAMAT GRACIAS

KAUAI COMMUNITY SCIENCE CENTER

Appreciates everyone who has supported KCSC getting started and contributed to the Students Sharing Science pilot project.

MAHALO TO YOU ALL!

Deborah Rowe
Adrienne Testa
Michelle Kortenaar
Integrated Science Class Students period 2/3
Integrated Science Class Students period 4/5
Mrs. Yamagata's 20% Science Fair Class
Rich O'Reilly
Christian Kahahawai
Kevin Arndt
Dr. Chuck Blay
Valerie Saiki
Janet Ashman
Neil Young
Kauai Makerspace
Waimea Canyon Middle School
Serena Cox
Skyler Lassman
Stephen Vazquez
Michelle Molina
Lisa Yamagata
Daniel Shyles
Cass Barbour
Brandon Hardon
Ben Sullivan
Principal Speetjens
Bill Arakaki
Georgette Cayaban
Art & Amelia Styan
The Sciencenter
The County of Kauai