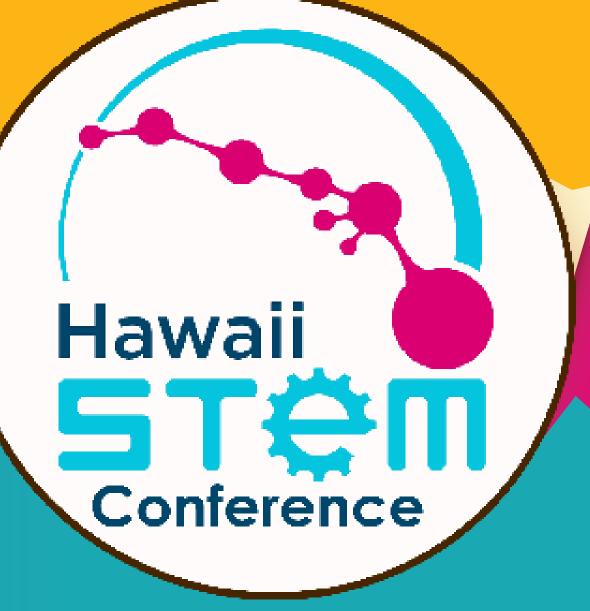
STEMWORKS PRESENTS 10th Annual



WED & THURS May 1 & 2 Hawaii (onvention (enter

Mahalo for your Support















MEDB Ke Alahele **Education Fund**



































FRIENDS OF THE **HAWAII STEM** CONFERENCE





















Aloha and Nelcome!

Be inspired and celebrate all the reasons why we LOVE STEM at the 10th Annual Hawaii STEM Conference!





PROFESSIONAL

DEVELOPMENT SESSIONS













SPOTLIGHT



SOLVING HUMAN CHALLENGES

STEMworksTM, a program of Maui Economic Development Board, is excited to partner with talented industry and educational professionals during our annual Hawaii STEM Conference! This two-day immersive event will engage students and teachers while connecting them to the many rewarding and challenging STEM careers.

Join us as we explore the latest technology tools and resources designed to inspire problem solving, critical thinking, innovation, collaboration, and communication.

Discover your passion as we celebrate STEM in Hawaii!

Warmest Aloha! The STEMworks™ Team





WWW.STEMWORKSHAWAII.ORG

ABOUT STEMworks[™]

As the flagship program of the Maui Economic Development Board, Inc., STEMworks™ is a service-learning initiative designed to engage, inspire, and motivate K-12 students and underrepresented groups toward STEM careers to create a better world.

STEMworks™ trains students and teachers in industry-standard software and engineering design practices using hands-on curriculum, regional conferences, and workshops. The goal is to work with educators, industry partners, and community members to build a thriving STEM education-to-workforce pipeline throughout Hawaii.

OUR MISSION

Provide students and teachers resources, inspiration, and tools that empower them to improve their community and world.

> "I'm inspired daily when I see our Kalama students after school working diligently on new projects. From sketching mascots to interviewing, coding to 3D printing; there is so much love and passion at our school. I'm proud to be apart of MEDB's STEMworks team."

Ms. Karen Wright, Kalama Intermediate



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STEMworks[™] K-12 SCHOOLS

HAWAI'I ISLAND

Honoka'a High & Intermediate School Kea'au High School Kealakehe High School

MAUI

Baldwin High School Kalama Intermediate School Kamali'i Elementary School King Kekaulike High School Lahainaluna High School Lahaina Intermediate School Lokelani Intermediate School Maui High School Maui Waena Intermediate School Pukalani Elementary School St. Anthony School Wailuku Elementary School

LANA'I

Lana'i High & Elementary School

MOLOKA'I

Moloka'i Middle - 'O Hina I Ka Malama Moloka'i Middle School Moloka'i High - 'O Hina I Ka Malama Moloka'i High School

O'AHU

Castle High School Farrington High School Hawaii Technology Academy McKinley High School Mililani High School Moanalua High School Roosevelt High School Waipahu High School

KAUA'I

Kaua'i High School



"I'm proud of introducing and promoting STEM at Wailuku Elementary and its students. I'm happy the kids get a taste of coding, engineering, robotics, science and investigating to help solve the problems of Maui and the world. I'm happy to introduce the spark that may lead to our future scientists."

Mr. Ryan Towata, Wailuku Elementary



eunote Speak



NAINOA THOMPSON

Pwo Navigator & President of the Polynesian Voyaging Society



Nainoa Thompson is the president of the Polynesian Voyaging Society and a Pwo navigator. Inspired by his kūpuna, his teachers, he has dedicated his life to exploring the deep meaning of voyaging. Among many other important mentors, Yoshio Kawano took him at an early age

to tide pools to explore the mysteries of the inshore ocean; Herb Kāne introduced him to the stars his ancestors used to navigate great ocean distances; and Pwo navigator Mau Piailug taught him to see the natural signs he would use to guide Hōkūlea, a replica of an ancient Polynesian voyaging canoe, throughout Polynesia. Nainoa's father taught him the universal values of voyaging – of having a vision of islands rising from the sea, of self-discipline, preparation, courage, risk-taking and the spirit of aloha that would bind a crew on arduous journeys.



SABARI RAJA

Co-Founder & CEO Nepris, Inc



PEPS Sabari is the co-founder of fast growing edtech company, Nepris, Inc. (www.nepris.com),

a first of its kind cloud-based platform connecting industry and education to inspire learners through real world connections and career exposure. She has worked in education technology for 18 years leading product and content strategy, business development, publisher relations, and emerging market growth strategies. She is passionate about working with educators to translate their needs into scalable technology solutions. She is on the board of Friends of Texas Public schools (FOTPS), the business advisory board at Texas Education Agency (TEA), and on the Champions board of Texas Girls Collaborative, and has a special interest in engaging girls and minorities in STEM. She also speaks on the topic of entrepreneurship and education technology at such venues as SXSWEdu, TEDx, Smartbrief and TCEA.

HAWAII STEM CONFERENCE



BRANDON MARCOS

STEMworksTM Student Kauai High School



Brandon Marcos is a senior at Kauai High School and has been an active member with Kauai High Schools Media Club,

Cyber Patriots, National Honor Society, Science National Honor Society, and, with

STEMworks[™]. His passion for media and computers has given him the opportunity to create promotional videos for McDonalds and intern with Kukui IT with the help of STEMworks[™]. He hopes to continue his education in Computer Science at the University of Hawaii at Manoa and pursue a career in Cybersecurity. He would like to thank Mrs. Aiwohi and STEMworks[™] for giving him the opportunity to speak to such amazing students who have a passion and interest in technology just like him.



SHAH SELBE

Engineer & Conservation **Technologist**



NATIONAL

Shah Selbe is an engineer and GEOGRAPHIC conservation technologist who works with communities, NGOs,

and developing countries to identify and deploy technologies that can help with their greatest conservation challenges. His projects have integrated crowdsourcing, smartphone apps, drones, satellite data, and sensors to address such conservation issues as illegal poaching and the monitoring of protected areas. He founded a conservation technology makerspace and prototyping lab, Conservify, which uses open source technology to empower local communities to change our planet's future. He has built and deployed low-cost conservation drones for coastal monitoring, open source environmental monitoring sensor networks in the Okavango Delta, acoustic monitoring buoys in the Pacific, and more. Selbe is a National Geographic Society Fellow, New England Aquarium Ocean Conservation Fellow, and PopTech Social Innovation Fellow. He is developing an open source hardware and web open science platform called FieldKit (fieldkit.org) that will help researchers, students, and explorers share live environmental and field data on an interactive site. He is building an extensive library of open source sensor systems that can be used in science and conservation research. Before becoming a conservation technologist, Selbe spent 10 years as a rocket scientist lauilding and launching satallites with Boeing.



SCHEDULE SUBJECT TO CHANGE^{}
VIEW OUR ONLINE PROGRAM
SCHEDULE!

http://bit.ly/2019HSCProgram



Wednesday | MAY 1, 2019

7:00 AM



REGISTRATION

Ala Halawai Center

Concourse

8:30 AM

ONSITE COMPETITIONS KICK OFF:

Hack-A-Thons

Citizen Science HACCupCoral Hack306B306A

Voyaging Song ChallengeOnsite Video Competition304AB308B

Onsite Product Pitch Design Competition 308A



TEACHER BREAKOUT SESSIONS

See Schedule

9:30 AM

BALLROOM OPENS

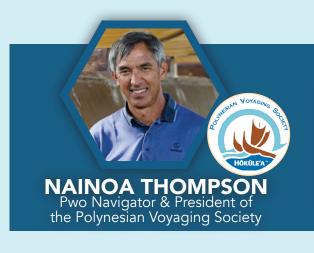
Kalakaua Ballroom

10:00 AM



ALOHA & WELCOME

Kalakaua Ballroom



KEYNOTE SPEAKERS

10:00 AM

Kalakaua Ballroom



SABARI RAJA
Co-Founder and CEO, Nepris

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HAWAII STEM CONFERENCE

SPONSORED BY



INDUSTRY
5x5
SESSION
11:00 AM - 1:00PM
Kalakaua Ballroom

INSPIRE • MOTIVATE
ENCOURAGE • CONNECT

1:00 PM - 3:00 PM



INTERACTIVE PLAYGROUND

316 ABC

Explore STEM through mini sessions!

SPONSORED BY







STEMworks[™] schools showcase projects, self-directed learning, critical thinking, problem solving, teamwork, community involvement, collaboration, resource integration, and service learning in their local communities.

3:00 PM - 5:00 PM



STUDENT BREAKOUT SESSIONS

See Schedule

6:00 PM



A LA CARTE Concessions

Kalakaua Ballroom





Thursday | MAY 2, 2019

7:00 AM



REGISTRATION

Ala Halawai Center Concourse

7:45 AM



2019 HAWAII STEM CONFERENCE STUDENT PHOTO



8:30 AM - 12:30

UNIVERSITY OF HAWAII EXPO

316ABC

PM

STUDENT BREAKOUT SESSIONS

See Schedule

8:00 AM - 1:00 PM

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See Schedule

8:30 AM - 1:00 PM

ONSITE COMPETITIONS CONTINUE

See Schedule

8:30 AM - 4:30 PM

HAWAII STEM CONFERENCE

SPONSORED BY



Stemmys 2019

> 1:00 PM - 3:30 PM Kalakaua Ballroom

An evening to recognize the excellence in Hawaii's STEM students!



2018 Piper Design Challenge Award By: Christiane Keyhani



SHAH SELBE
Engineer & Conservation
Technologist, National Geographic

KEYNOTE SPEAKERS



BRANDON MARCOS STEMworks TM Student \bigoplus



HOPE TO SEE YOU ALL NEXT YEAR AT THE 11TH ANNUAL HAWAII STEM CONFERENCE!

WWW.HAWAIISTEMCONFERENCE.ORG

Andustry 5x5 Session

Discover New Careers Through STEM

MAY 1, 2019 | 10:30 AM - 1:00 PM KALĀKAUA BALLROOM



"I found their advice and wide variety of perspectives were very valuable and helped me gain a greater understanding of what I want to do in my future career." "During the 5x5 session, I learned to keep an open mind because choosing a career path can open up different opportunities and I learned that the unexpected might become your passion."





- AFRL/RDSM
- Alabama College of Osteopathic Medicine
- American Savings Bank
- Bayer
- Blue Planet Foundation
- City/County of Honolulu
- Conservify
- DevLeague / Sudokrew
- EK Ventures
- ES&A, Inc.
- Esri
- Events By DJ Pinay
- Fessenden Public School
- Girls Empowered and Mentored for Success (GEMS)

- Hawaii Energy/Leidos
- Hawaii Pacific Health
- Hawaiian Telcom
- HCATT
- HMSA
- Honolulu Board of Water Supply
- Kahala Jiu Jitsu
- Microsoft Corporation
- National Kidney Foundation
- Nā Hunaahi
- National Geographic Society
- Navy Information Operations Command Hawaii
- Nepris
- NIOC Hawaii

- Oceanit
- Pacific Center for Advanced
 Technology Training
- Pacific Fleet Submarine Museum
- Pacific Point, Inc.
- Raytheon
- Robonation
- State of Hawaii Creative Industries Division /Creative Lab Hawaii
- The Chamber of Commerce Hawaii
- Title Guaranty
- United States Navy
- and more!

INDUSTRY OPPORTUNITIES



2019 STAM Summer Internship!

June 10 - July 26, 2019



APPLY BY MAY 10, 2019

GET EXCITED, GET PAID, BUILD PROFESSIONAL CONNECTIONS.

Under the STEMworks™ Internship Program, students (grades 9-12) have a unique opportunity to practice technical and employabilty skills while gaining confidence in their ability to be a STEM professional. Effort is placed on connecting the dots between STEMworks™ curriculum, software tools available in the classroom, and real world applications. It's a win-win where young STEM and agriculture students gain valuable on-the-job skills while networking with industry professionals.



"I have a much better understanding of what direction I want to look into as far as what I want to study and eventually make a career out of; this internship opened up my eyes to a whole new study called "scientific visualization," which combines a field of science and graphics in order to effectively illustrate scientific data."

Amanda Schiff, Kealakehe High School Graphic Designer, Canada-France-Hawaii Telescope



Civil Engineering Assistant, SSFM International





"This week, we had some issues with imaging computers that would be used by doctors who help troubled kids. One of the issues we had was a slow image download from a NAS which was due to so many computers downloading the image at once."

- Brandon Marcos, Kauai High School Kukui IT "I had figured out what duplicate field names meant and resolved the problem on why my files from the hard drive would not upload. Here I am currently uploading all the files that could not be uploaded before, onto the ArcGIS map my mentor and I are creating."

- Tehya Purdy -Yamane, King Kekaulike High School MEDB Health Sector Partnership



Visit www.stemworkshawaii.org/internships more information or to apply for the internship!



WEDNESDAY | MAY 1 | 1:00 PM - 3:00 PM | 316ABC



STEMWORKS[™] THINKIT

Dream, Invent, Design, and Test with THINKit! Learning is a creative endeavor where ideas become powerful tools. THINKit is designed to nurture creativity to develop inventive and entrepreneurial thinking. By design, THINKit provides teachers with a continuum of tools that advance critical thinking and skill development from kindergarten to career!



AFRL PLANETARIUM

Explore the heavens from the Air Force Research Laboratory's portable planetarium. Learn about popular night-sky objects you can see from your backyard, either with the naked eye or with the aid of a small telescope or binoculars. This digital planetarium show will teach you how to understand astronomical coordinate systems, use important points to find stars, planets, constellations, and even satellites!



BISHOP MUSEUM STEM PROGRAMS

Explore Hawaii's land, sea, and sky through the collections, exhibits, and programs of the Bishop Museum. Get hands-on with specimens, or learn about planetarium and science programs offered for field trips and sleepovers.



CELESTRAK 3D INTERACTIVE ORBIT VISUALIZATION

Simple, intuitive tool to allow users to explore and learn about the satellites and other objects (debris) currently in Earth's orbit.



CREATIVE LAB HAWAII

The State of Hawaii, Creative Industries Division has founded an accelerator and incubator program that will be designing and producing a high-school version of the program in 2020. We are committed to meeting educators and students interested in the arts, media, music, and fashion and inviting them to planning conversations we will be holding in 2019.



EFFICIENCY UNLOCKED

Learn about energy efficiency resources to help understand tough energy concepts and engage through hands-on activities that further the understanding of how to live an energy efficient lifestyle.



ESRI

Make maps, analyze data, understand the world, solve problems with ArcGIS Online.

HAWAII STEM CONFERENCE



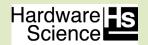
GENCYBER HAWAII

Come and learn about our GenCyber Hawai'i summer cybersecurity student camps we will be offering across our state this year. Camps are free and funded by the National Security Agency and National Science Foundation. Our camps will introduce students to safe online practices and behaviors, as well as open up their world to learning more about cybersecurity as a career opportunity. Camps include hands-on activities related to a reas such as coding, cryptography, networking, and security. Stop by and have some fun with handson activities we have related to the cybersecurity realm.



GET ACTIVE, LEARN, AND HAVE FUN WITH STEMSCOPES ACTIVITIES This interactive and highly engaging session showcases many STEMscopes science lessons. We follow the 5E model of inquiry throughout the program. Get active, learn, and have fun in this playground session!

HARDWARE SCIENCE



Learn about science through hands-on interactive activities using materials from the hardware store and everyday items found in the house. We have science project kits for participants to explore and science curriculum books.



GIRL SCOUTS OF HAWAII

Snap Circui t- Flying Saucer

Make a circuit that faunches the fan blade to simulate a flying saucer.





Nepris connects educators and learners with a network of industry professionals, virtually, bringing real-world relevance and career exposure to all students. Nepris also provides a skills-based volunteering platform for organizations to extend education outreach, and build their brand among the future workforce.

MICROSOFT PLAYGROUND



Swing by the Microsoft Booth to explore the latest technologies, Microsoft including VR and mixed reality demonstrations. Dive into our Hacking STEM, MakeCode, and Minecraft hands-on activities to learn how you can build affordable inquiry and project-based activities to visualize data across STEM curricula while learning about Artificial Intelligence and computational thinking.

NATIONAL GEOGRAPHIC

NATIONAL GEOGRAPHIC BASE CAMP

Time for students to meet a National Geographic Explorer! Shah Selbe is an engineer and conservation technologist. His projects use open source technology to empower local communities to change our planets future.

ROBONATION: ROBOTICS & ENGINEERING DESIGN



Students will explore engineering design by building a SeaPerch ROV frame using PVC pieces and modeling a SeaPerch using a virtual game called VPerch. Learn how robotics can be used to learn about the environment around us and how students can help to collect data using robots with sensors by exploring a new citizen science tool called SeaSense.

\$ \$ \$ \$ \$ \$ ELEMENTAL EXCELERATOR

STEM FOR THE SOCIAL GOOD

Reclaiming the identity of STEM as a driver of social and environmental justice is to understand student voice and values in ownership of learning; to connect students' curiosity in STEM towards change; and inspire a more inclusive worldview of what STEM is and can be for our collective future.

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STEM Spotlight

MAY 1, 2019 | 1:00 PM

LEVEL 3, ROOM 316ABC

Join us to celebrate the STEM service learning projects created by Hawaii STEMworks™ students.

STEMworks™ empowers students with professional and technical skills, while providing work-based learning opportunites that build critical and creative thinking. As students design real solutions for today's needs, they are gaining the skills to successfully meet tomorrow's challenges.









Special thanks to Mark Loughridge and Steve Sue for their amazing leadership and support.

THE PRIZE: Winners will be given the opportunity to work in a paid internshipthissummerattheiLabinthe DepartmentofMechanicalEngineering at the University of Hawai'i at Manoa to complete the design work and proof of concept for a first version of the app.

LED BY: Dr. Yvonne Chan, Iolani School Rich Downs, Manu o Ku Hui

THE THE CHALLENGE: Ancient mariners relied upon this species to alert them to landnearby. Canyouhelpasupercutenativespeciessoarthroughyourcreative efforts on a new app that will mobilize citizen scientists?

These adorable critters live in our midst but face threats we need to better quantify-- through the design of your app!

Designers and coders alike are welcome to team up and join the hack. Final presentationscan bemockups, wireframes and/or coded prototypes. Whatever you do, persuade us, the judges, on why your designs will take off and help the species attain new heights.

THECHHLLENGE: Coral reefseverywhere face great perilas the oceans heat up. Entire ecosystems may collapse if we lose our coral reefs. Scientists here in Hawaii lead the global effort to develop corals that can adapt to warming oceans—but they need your help.

They need your creativity and innovation with 3D printing to develop new structures that the corals can attach to and grow. At the hack, the experts will share the specific criteria your inventions should address. Joinus in pioneering work to save species and ecosystems at great risk in our warming world.



THE PRIZE: Winners will be given the opportunity to work this summer at the iLab intheDepartmentofMechanicalEngineering at the University of Hawai'i at Manoa to finalize prototypes and print in 3D the designs that scientists can test with corals.

LED BY: Doug Harper and Emma Shelly, Malama Maunalua



THE PRIZE: Students who complete the challenge will be given the opportunity to take their songs to the nextlevelincludingtheopportunityto workinaprofessionalrecordingstudio. In partnership with:

HENRY KAPONO FOUNDATION MANA MAOLI'S MANA MELE PROJECT POLYNESIAN VOYAGING SOCIETY

THE CHALLENGE: In the next set of voyages, the Polynesian Voyaging Society has a mission to bring together nations from around the Pacific and world in peace and to raise awareness for the oceans and environment. Imagine a songthatpeoplefromthedifferentnationssingasthevideomontagemoves from one people and culture to the next. All singing a song that originates in Hawai'i with the start of the voyage. Now imagine that it's your voyaging song; your gift of aloha to the world.

In this hack we challenge you to inspire us all with words, melody and rhythms that embody the spirit of these voyages and the desire to bring the worldtogether. Students can also learn about basic recording techniques and gain songwriting pointers from the professionals at the hack.

The challenge begins with Nainoa Thompson, President of the Polynesian Voyaging Society, explaining the mission and theme of the upcoming voyages. Work in your teams to shape a rough melody and first draft lyrics. Support from the Henry Kapono Foundation, singer/songwriter Henry Kaponoand Punahou School music teacher, James Anshutz, will be on hand to consultand guide you to find that spark that can catch fire in the recording sessions to follow.

LED BY: James Anshutz, Punahou School Keola Nakanishi, Kelli Heath Cruz, Erik Yoshimoto, Mana Maoli Lezlee Ka'aihue and Henry Kapono, Haumea Ho, Lee Anderson, Kapono Foundation







2018 On-Site Video
Competition Award
By: Quintan Uradomo

Designed by STEMworks™ students for STEMworks™ students.

Under the guidance of industry professionals, middle and high school students compete in fast-paced sessions which encourages creativity, design, problem-solving, and entrepreneurship. These competitions are designed to put the skills and creativity to the test!

The customized and one-of-a-kind awards for each competition are specially designed by **King Kekaulike High School's STEMworksTM Lab** and its students!

Pre-Competitions

- ArcGIS Online Competition
- Game Design
- Photography
- STEMworks Mascot
- Superhero CAD
- T-Shirt Design
- 60 Second Lab Tour

On-Site Competitions

- Citizen Science Haccup
- Coral Hack
- On-site Product Pitch Design
- On-site Video Competition
- Voyaging Song Challenge







ADOBE AFTER EFFECTS - BEGINNING Presented by: Maui High School ACOM

PARTICIPANTS MUST HAVE: Laptop with Adobe After Effects version 6.5+

This session will provide a detailed introduction to the industry standard for motion graphics - Adobe After Effects. In this workshop, we will be focusing on motion graphics and creating animations within After Effects from scratch. Keyframing, masking, and layering will be covered.

ADOBE AFTER EFFECTS - INTERMEDIATE Presented by: Maui High School ACOM

PARTICIPANTS MUST HAVE: Laptop with Adobe CC

This workshop welcomes experienced Adobe After Effects users who are interested in learning more about an imating and special effects. In this session, expressions, motion graphics, masking, and compositing will be covered.

ALWAYS TIME FOR SCIENCE IN EARLY GRADES (PK-4)

Presented By: Kenn Keydrick & Tammy Norman, STEMscopes

With the increased focus on accountability for science, there is new way to offer a play-based and literacy-based program for young learners. This hands-on science program supports child development and socio-development in a meaningful way. There is always time for science!

CODE.ORG CS FUNDAMENTALS

Presented by: Shane Asselstine, Momilani Elementary School

PARTICIPANTS MUST HAVE: Laptops

No-cost, high-quality professional development workshop from an experienced computer science facilitator. The workshop will provide an intro to computer science, pedagogy, overview of the online curriculum, teacher dashboard, and strategies for teaching "unplugged" classroom activities. Workshops will prepare you to teach the Code Studio courses for grades K-5.

COMPUTER SCIENCE: FROM UNPLUGGED TO PHYSICAL Presented by: Shane Asselstine, Momilani Elementary School

PARTICIPANTS MUST HAVE: Laptops

Computer science is everywhere. Educators get hands-on as they spend time learning how to bring computer science concepts into the classroom. Through activities that start unplugged, move into the digital, and finish in the physical, they will walk away with a better understanding of how it all fits together.

CONSERVING OUR PLANET: STORIES FROM A NATIONAL GEOGRAPHIC CONSERVATION TECHNOLOGIST

Presented by: Brenda Barr, National Geographic Society

PARTICIPANTS MUST HAVE: Laptops

Meet National Geographic Explorer Shah Selbe. Shah will talk about the intersection between conservation and technology. Shah travels the world to protect our planet and his stories will inspire us all to make a difference.

CREATIVE LAB HAWAII - HIGH SCHOOL PROGRAM

Presented by: Michael Andres Palmieri, State of Hawaii - Creative Industries Division/ Creative Lab Hawaii

Join us for an informational session on the state of the creative industries in Hawaii. Learn about the high school program we are planning that will focus on high school students interested in a career in the arts, media, music, and fashion.

DEMYSTIFYING COMPUTER SCIENCE INTEGRATION: PRACTICAL STRATEGIES FOR THE CLASSROOM

Presented by: Aaron Sickel, Brett Tanaka, Faith Ishihara, Jeanine Nakakura, Hawaii DOE PARTICIPANTS MUST HAVE: Laptop or Tablet (no mobile phones)

Come join this interactive session to examine strategies for integrating computer science into multiple subjects. Participate as a learner, share ideas as a colleague, and leave as a more confident teacher!

DEMYSTIFYING THE NGSS AND STEM LITERACY USING THE PHENOMENON OF LIGHT Presented by: Kenn Keydrick & Tammy Norman, STEMscopes

STEMscopes-NGSS is engaging for students, easy for teachers, and affordable for schools. Come preview our scientifically proven 5E-based STEM science curriculum that is digitally delivered and written for the NGSS. Technology-based simulations and engineering design challenges are part of the hands-on components. STEMscopes is engaging for students!

DSLR BASICS

Presented by: John Allen III, Donn Yamamoto, UH STEM Pre-Academy

PARTICIPANTS MUST HAVE: Laptop and DSLR Camera

Using a DSLR camera can be a daunting task. With so many buttons and features, it's hard to decide where to start. Visual Storytelling: DSLR Basics gets you started in developing the skills needed to bring video/photography and visual storytelling into your classroom. In this workshop, you will be introduced to the specific features of the DSLR camera that help you achieve the shots you've always wanted. Learn how to turn off the "auto" pilot and grab full control of your camera to create amazing images and stories.

ENGAGE STUDENTS WITH STEMSCOPES ACTIVITIES

Presented by: Kenn Keydrick & Tammy Norman, STEMscopes

This interactive and highly engaging session showcases many STEMscopes science lessons. We follow the 5E model of inquiry throughout the program. Come see how your role as a STEM teacher can become more manageable and enjoyable while engaging your students!

TEACHER SESSIONS

EXPLORING THE IMPACTS OF CLIMATE SCIENCE IN THE CLASSROOM (3D NGSS)

Presented by: Victoria Suarez, ENGIE Services U.S. Hawai'i Region

In this session, teachers will learn about Ocean Acidification and Climate Change through handson inquiry. We will discover impacts of the ocean absorbing atmospheric CO2 resulting in lower pH (ocean acidification) through creating a model. Teachers will also learn about melting oceanic and land glaciers by investigating the impacts of sea level rise. We will also discuss thermal expansion of water and view a model that accounts for the increase in sea level due to the warming of the oceans. This session is appropriate for all grade levels.

IT'S NOT ALWAYS #000000 AND #FFFFFF Presented by: Toni Marie Kaui, Nā Hunaahi PARTICIPANTS MUST HAVE: LAPTOPS

There's more to coding and computer science than apps and games because it's not as black and white as some people believe! Come find out how coding and computer science can help improve your learning and achievement in and out of the classroom.

KO UKA KO KAI: THAT OF THE UPLANDS, THAT OF THE SEASHORE

Presented by: Gandharva Mahina Hou Ross, Kamanaao DeKneet, Kuuipo Dayton, O Hina I Ka Malama Kula Kiekie

Students from Molokai High School 'O Hina I Ka Malama will share the work that they have been doing in their STEM lab from virtual field trips, 'O Hina I Ka Malama newscast, and ArcGIS Story maps.

LEVERAGING A PROJECT MANAGEMENT APPLICATION FOR COMMUNICATION AND ORGANIZATION

Presented by: John Allen III, Donn Yamamoto, UH STEM Pre-Academy

PARTICIPANTS MUST HAVE: Laptop and/or Mobile Device with Basecamp (trial: wwwbasecamp. com)

Managing all of your projects can be a challenge, especially when there are many moving parts at one time. By using current technologies, such as project management tools, not only can educators keep track of student projects, but students can easily coordinate their tasks and communicate with their team all in one place. In this hands-on session, participants will gain experience with the Basecamp project management tool to see how they can use it in their classroom.

MAKER RACERS

Presented by: Quenna Beston, Munich Public School: Holly Erickson, West Fargo Public School: Beth Podoll, North Dakota University: Kelsey Mongeon, Fessenden Public School

3D printing is at the forefront of multiple industries as we continue to make advancements in society. This session will explore how to prepare our students for the ever-changing career pathways. Session attendees will take part in the Engineering Design Process by designing and racing a maker racer.

MAPPING AHUPUA'AS

Presented by: Charlie Fitzpatrick, Esri

PARTICIPANTS MUST HAVE: Laptop or tablet with web browser

This is an intro to mapping with ArcGIS Online, using ahupua'as as the content. Make a 2D map, then a 3D map, and then combine all three in a Story Map. ArcGIS Online login will be provided.

NEPRIS - HOW TO BRING CAREERS INTO THE CLASSROOM: THE IMPORTANCE OF CONNECTING STUDENTS TO CAREER PROFESSIONALS

Presented by: Jim Clor and Sabari Raja, Nepris

The future of STEM curriculum is an increased emphasis on industry engagement. Whether linking curriculum for real world application and career exposure or industry professionals mentoring and evaluating student projects, industry engagement bridges the gap between curriculum and real-world skills. Learn how districts have opened up access to industry for classrooms with Nepris.

STEMWORKS™ ENERGY

Presented by: Graham DeVey, STEMworks™

Learn more about using solar energy's power to combat climate change. Explore renewable energy in this interactive experience using photovoltaic (PV) panels! Discover ways to engage students in relevant science exploration while learning more about electricity.

TAPPING THE CREATIVE GENIUS OF STUDENTS TO TRANSFORM EDUCATION TECHNOLOGY

Presented by: Stevin Smith, Ka'ana Solutions

Learn about the many ways that your school can harness the creative genius of students to transform how technology is used - to improve family engagement, save teacher and tech director time, and provide an authentic work experience in the rapidly evolving field of IT, applications and digital learning.

THE GEO-INQUIRY PROCESS WITH NATIONAL GEOGRAPHIC

Presented by: Brenda Barr, National Geographic Society & Shan Selbe, Conservify PARTICIPANTS MUST HAVE: Laptop

National Geographic invites you to empower students to think like explorers. Join us for a handson session to learn how the Geo-Inquiry Process connects students to real-world problem solving.

THE PATH TO 100% (ENERGY EFFICIENCY AND RENEWABLE ENERGY)

Presented by: Tony Kawal, Hawaii Energy & Griff Jurgens, Blue Planet Foundation PARTICIPANTS MUST HAVE: LAPTOPS

Educators will learn how to utilize Hawai'i Energy and Blue Planet Foundation's renewable energy and energy efficiency resources to help students understand to ughenergy concepts and green jobs. They will also receive information on programs that help Hawai'i residents save energy, and save money. Educators will learn about the free energy efficiency presentations and hands-on activities that are offered throughout the islands that further students' understanding of how to live an energy efficient life style.

VR & AR CREATION WITH COSPACES EDU: SO EASY YOUR STUDENTS CAN DO IT! Presented by: Michael Fricano II, 'Iolani School

PARTICIPANTS MUST HAVE: Laptop or iPad: CoSpaces Edu, Merge Cube, Galactic Explorer Apps LearnhowCoSpacesEdu,aweb&mobileVRandARcreationtool,makescreatingAR&VReasyforyouand yourstudents.Inthisfulldayworkshop,you'lllearnhowtomaximizeuseintheclassroomthroughaseries of creation challenges.

TEACHER SESSIONS



ENVIRONMENTAL SCIENCE AND STEM SESSIONS



MAY 1, 2019

10:00 AM - 11:00 AM | ALOHA & WELCOME | KALAKAUA BALLROOM
KEYNOTE SPEAKER: Nainoa Thompson, Pwo Navigator & President of the Polynesian Voyaging Society

11:00 AM - 11:35 AM | ROOM: 302AB | MA KA HANA KA IKE: AINA-BASED STEM EDUCATION AT WAI'ANAE INTERMEDIATE SCHOOL

Presented By: Pauline Chinn, Kekaha Spencer and Brigitte Russo, Wai'anae Inter., Aliah Irvine, Curriculum Studies

In 2016 Wai'anae Intermediate science teachers began redesigning their program to be relevant to students and community. 'Aina, mo'olelo, 'olelo no'eau, and community partners became resources for place-based curriculum. Restoring a section of Keawa'ula Beach Park and projects mauka to makai change the landscape and students for the better.

11:35 AM - 12:15 PM | ROOM: 302AB | SUSTAINABILITY TALK STORY

Come by the Sustainability Strand room to talk story about how to connect STEM with sense of place and Hawaii's sustainability goals. This is an open session for discussion.

12:30 PM - 1:05 PM | ROOM: 302AB | AINA-INFORMATICS: PLACE-BASED GENOMICS FOR YOUR HIGH SCHOOL CLASSROOM

Presented By: Yvonne Chan, Iolani School

Āina-informaticsisanewteachernetworksupported by Iolani School to bring place-based genomescience into local high school classrooms. Applied in real world contexts, these technologies enable high school students to be not just recipients, but also generators of new scientific knowledge.

1:15 PM - 2:15 PM | ROOM: 302AB | SMART ALA WAI AND NA WAI 'EKOLU ENVIRONMENTAL OUTREACH ACTIVITIES IN THE ALA WAI WATERSHED *Presented By: University of Hawaii at Manoa, SOEST*

Asurbanization becomes common place in Hawaii, information to how human disturbance affects natural resources must be accessible. Educational modules have been developed through collaboration between K-12 schools, Iolani School's Na Wai' Ekolu, and UHManoa's SMARTA la Wai programs to address how to be better stewards of our watersheds.

2:30 PM - 3:30 PM | ROOM: 302AB | WAIANAE INTERMEDIATE STUDENTS RESTORE KEAWAULA Presented By: Brigitte Ululani Russo, Aliah Irvine, Waianae Intermediate School Theknowledgeinindigenoususesandstories of native plants not only hold a connection to place, but key

ecological functions. Waianae Intermediate students adopted an acre of landat Keawaulato create strong ties to community through deeperscientific, ecological, cultural, value of place to learn contemporary STEM.

3:45 PM - 4:20 PM | ROOM: 302AB | QUANTIFYING LEVELS OF CARBAMAZEPHONE AND ETHYNYLESTRADIOL FROM CESSPOOL LEAKAGE IN URBAN AREA STREAMS ON OAHU TO IDENTIFY POTENTIAL HUMAN AND ENVIRONMENTAL RISKS

Presented By: Dr. Henrietta Dulai — Department of Geology and Geophysics, University of Hawaii Manoa, 'Iolani School

[Wastewater–Manoa/Palolo] Carbamazepine and ethinylestradiol were detected, which indicates cesspool effluent is entering our aquatic environment. Students should be exposed to aspects of water quality. We will also discuss methods of waste disposal (cesspools, septic, municipal wastewater). In the future, we will look at wastewater concentrations in stream sediment.

MAY 2, 2019

9:30 AM - 10:35 AM | ROOM: 302AB | MAKING THE INVISIBLE VISIBLE

Presented By: Dora Nakafuji, Michelle Correira, Frank Kimitch, Kamehameha Schools Working with utilities and industry, Kamehameha Schools joins DOE schools with PowerScopes on campuses. Like doctors using heart monitors to check patients, KS is using smart tools to see and maintain a pulse-check on energy and solar. Come learn, see how everyone can be energy doctors helping schools save.

10:45 AM - 11:20 AM | ROOM: 302AB | EDUCATING IN THE ERA OF GENETIC RISK TO TYPE-2 DIABETES

Presented By: Whitney Aragaki, Waiakea High School

Biology is a call to learning how to live. With the propensity to type-2 diabetes in Hawaii reaching 50%, studentsneeds to be equipped to navigate their genetics, food security, and community sustainability. We combine natural selection, evolution, genetics, farm-to-table practices, and bioenergetics.

11:20 AM - 12:45 PM | ROOM: 302AB | SUSTAINABILITY TALK STORY

Come by the Sustainability Strand room to talk story about how to connect STEM with sense of place and Hawaii's sustainability goals. This is an open session for discussion.

1:00 PM - 2:00 PM | ROOM: 302AB | OCEAN ACIDIFICATION AND THE NECESSITY OF CLEAN ENERGY

Presented By: Davin Sasaki, Edwin Colon, University of Hawaii System, STEM Pre-Academy Clean energy isn't just good for the air, but also for our oceans. Pollution from fossil fuel burning causes ocean acidification, which hurts marine organisms and can damage our food supply. This hands-on kit teaches the causes and consequences so students can develop solutions.

2:15 PM - 2:50 PM | ROOM: 302AB | TESTING FOR NITROGEN SOURCES AT THE WAIKIKI

NATATORIUM: A SCHOOL-UNIVERSITY RESEARCH COLLABORATION

Presented By: Scott Chulakote, Pauline Chinn, Univeristy of Hawaii at Manoa, Marine Biology Graduate Program

On March 20, Celia Smith's Limu Lab students and teachers collected invasive algae to test for nitrogen. The δ 15N bioassay is the first study of nitrogens our cesat the Waikiki Natatorium reef. Teachers are prepared to teach about and support future tests around Oahu that indicate possibility of sewage contamination.

3:00 PM - 3:35 PM | ROOM: 302AB | MAMALA ALOHA AINA

Presented By: Trevor Atkins, Kristi Desuacido, Phil Galicinao, Ramsey Soto, Halau Ku Mana Our streams thread our community together into a lei. We are embracing our role in the lei and actively inspiring fellow school educators to take responsibility for sections of our watersheds. This is the story of Makiki Aloha Āina and how you can help.



A SWEET DAY TO TALK DNA

Presented by: Paola Espinoza, Michelle Starke, Yarrow Flower, Bayer

All cells contain DNA and it contains the directions or code for how all living things grow and develop. Have you ever wondered about DNA? What it looks like, how it is coded, or how it works? Students will have a chance to see and 'code' DNA!

ADOBE AFTER EFFECTS - BEGINNING Presented by: Maui High School ACOM

PARTICIPANTS MUST HAVE: Laptop with Adobe After Effects version 6.5+

This session will provide a detailed introduction to the industry standard for motion graphics. Inthisworkshop, we will be focusing on motion graphics and creating animations within After Effects from scratch. Keyframing, masking, and layering will be covered.

ADOBE AFTER EFFECTS - INTERMEDIATE

Presented by: Maui High School ACOM

PARTICIPANTS MUST HAVE: Laptop with Adobe CC

Thisworkshopwelcomes experienced Adobe After Effects users who are interested in learning more about an imating and special effects. In this session, expressions, motion graphics, masking, and compositing will be covered.

ARTIFICIAL INTELLIGENCE

Presented by: Todd Beard, Microsoft
PARTICIPANTS MUST HAVE: Laptop

Collaborate to create a microcontroller that uses the Al power of Cortana to compete against others teams in a real-world, passion-based lesson on coding computational thinking and Al.

BBC OCEANS HACKINGSTEM

Presented by: Todd Beard, Microsoft

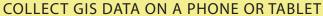
Howdosharksswim? Howdoes a game controller work? We will solve these two questions while learning about mechanical engineering, electrical engineering, software engineering, and data science.

CODING WITH MINECRAFT

Presented by: Todd Beard, Microsoft

PARTICIPANTS MUST HAVE: Laptop or iPad with Windows 10, iOS 10, with Minecraft Education Edition

Learn the basics of coding in this fun and engaging challenge in the world of Minecraft Education Edition. Learn how to navigate your favorite game with new items, using algorithms that make coding cool!



Presented by: Charlie Fitzpatrick, Esri

PARTICIPANTS MUST HAVE: Laptop, Tablet, or Smartphone

Use ArcGIS Online and Survey123 or Collector for ArcGIS to gather field data for mapping and analysis, via tablets or smartphones, Android or iOS, collecting data even if disconnected. BYO (bring your own) tablet or smartphone to collect data, and tablet or laptop to try building collection instruments.

CONSERVING OUR PLANET: STORIES FROM A NATIONAL GEOGRAPHIC CONSERVATION TECHNOLOGIST

Presented by: Brenda Barr, National Geographic Society & Shan Selbe, Conservify

Meet National Geographic Explorer Shah Selbe. Shah will talk about the intersection between conservation and technology Shah Travels the world to protect our planet and his stories will inspire us all to make a difference.

CREATED AUGMENTED REALITY LEARNING TOOLS WITH THE MERGE CUBE

Presented by: Michael Fricano II, 'Iolani School

PARTICIPANTS MUST HAVE: Laptop or iPad with CoSpaces Edu app, Merge Cube app, and Galactic Explorer

One of the hottest new technology trends of 2019 is Augmented Reality (AR)! In this session, you'll learn how to create your very own AR experience using CoSpaces Edu and the Merge Cube!



CREATIVE LAB HAWAII - HIGH SCHOOL PROGRAM

Presented by: Michael Andres Palmieri, State of Hawaii - Creative Industries Division / Creative Lab Hawaii

PARTICIPANTS MUST HAVE: Laptop

Join us for an informational session on the state of the creative industries in Hawaii. Learn about the high school program we are planning that will focus on high school students interested in a career in the arts, media, music, and fashion.

DJ-MUSIC PRODUCTION

Presented by: Ron Tolbert, DJRon808

Introduction to the DJ Industry! Equipment introduction to different music genres, connecting equipment, tune structure, cueing techniques, counting beats, bars and phrases. Learn about beat matching, EQ, settings, and mixing different styles of music! Analyze and detect the key of tracks for perfect harmonic mixes using Pioneer's Serato software to prepare your music.

STUDENT SESSIONS

ENGAGE STUDENTS WITH STEMSCOPES ACTIVITIES

Presented by: Kenn Heydrick & Tammy Norman, STEMscopes

This interactive and highly engaging session showcases many STEMscopes science lessons.

HAWAIIKIDSCAN

Presented by: David Miyashiro, HawaiiKidsCAN

Shapingthefutureofeducationthroughstudentvoice. This workshop will provide students with hands-on skill stoadvocate for themselves and the kinds of learning experiences they want. Students will then engage in a focus group to help policy makers.

HOW DOES MY TEXT GET SENT? RADIO COMMUNICATION WITH MICRO:BITS!

Presented by: Shane Asselstine, Momilani Elementary School

PARTICIPANTS MUST HAVE: Laptops with Google Chrome

Computer science impacts all industries and communication today is vital! Spend time today in a hands-on Micro:bit session where you will use computer science to learn about radio communications. Through projects like multiplayer Rock-Paper-Scissors and the Firefly Effect, you will gain an understanding of how CS impacts your world.

IT'S NOT ALWAYS #000000 AND #FFFFFF

Presented by: Toni Marie Kaui, Nā Hunaahi

PARTICIPANTS MUST HAVE: Laptop

There's more to coding and computer science than apps and games because it's not as black and white as some people believe! Come find out how coding and computer science can help improve your learning and achievement in and out of the classroom.

KO UKA KO KAI: THAT OF THE UPLANDS, THAT OF THE SEASHORE

Presented by: Gandharva Mahina Hou Ross, Kamanaao DeKeneet, Kuuipo Dayton, O Hina I Ka Malama Kula Kiekie

Students from Molokai High School 'O Hina I Ka Malama will share the work that they have been doing in their STEM lab from virtual field trips, 'O Hina I Ka Malama newscast, and ArcGIS Story Maps.



MAKER RACERS

resented by: Quenna Beston, Munich Public School: Holly Erickson, West Fargo Public School: Beth Podoll, North Dakota University: Kelsey Mongeon, Fessenden Public School

3D printing is at the forefront of multiple industries as we continue to make advancements in society. This session will explore the ever-changing career pathways. Session attendees will take part in the Engineering Design Process by designing and racing a maker racer.











MAKERSPACE WITH MAKECODE.COM AND IOT (INTERNET OF THINGS)

Presented by: Todd Beard, MicrosoftPARTICIPANTS MUST HAVE: Laptop

Explore the Internet of Things in this hands-on, project-based learning activity with blocks, Javascript, and micro-controllers. Students will make their own IoT devices while learning about the world of connectivity and coding.

MAKING A DIFFERENCE WITH CLEAN ENERGY

Presented by: Tony Kawal, Hawaii Energy & Griff Jurgens, Blue Planet Foundation

Students will learn about the history of climate change and the impact of their carbon footprint. By making their way through an energy efficiency microsite, being dealt a hand from the A to Z playing cards, reviewing infographics, and playing a jenga-like game that symbolizes the power grid, students will be equipped with the tools to tackle the most difficult energy challenge of their generation.

MAPPING AHUPUA'AS

Presented by: Charlie Fitzpatrick, Esri

PARTICIPANTS MUST HAVE: Laptop or Tablet with web browser

This is an intro to mapping with ArcGIS Online, using ahupua'as as the content. Make a 2D map, then a 3D map, and then combine all three in a Story Map. BYO (bring your own) laptop or tablet, wifi-ready, with recent browser. ArcGIS Online login will be provided.

MEET COZMO, THE CUTEST AI ROBOT!

Presented by: Terry Holck, Nānākuli-Waianae Complex Area

Come meet Cozmo, an Al robot with a cute personality. In this session, you'll learn how to teach Cozmo to recognize your face and say your name. Challenge him to a game of Quick Tap, Keep away, or Memory Match. You'll also see how easy it is to code him.

STUDENT SESSIONS





MINI MAKER LAB

Presented by: Michael Richards & Denisse Aranda, Science Camps of America

Learn how electronic circuits operate as you build your own salinity tester. Students will get hands-on instruction in how to safely use a soldering iron to assemble electronics. Students will design, build, and test their own salinity testers which students will use to compile data on the salinity of different substances.

MISSION POSSIBLE

Presented by: Jennifer Stewart & Barbara Teraji, NSA - Hawaii

Imagine you are a Secret Agent working with a team of experts whose job it is to intercept enemy communications and prevent attacks against American people. You and your team have discovered a briefcase and intelligence leads you to believe it contains vital information to stop an impending terrorist attack. It is critical you open the briefcase quickly but it is locked and requires a six-digit combination to open safely. If the wrong combination is used, the contents of the briefcase will self-destruct. Can you work with a team to decrypt the code and open the briefcase in time?

STEMWORKS™ ENERGY

Presented by: Graham DeVey, STEMworks™

How can you combat climate change? Explore the power of solar energy in this interactive session using photovoltaic (PV) panels! In this session, you will discover how and why solar PV is very successful and is currently being used to offset fossil fuels and combat climate change in Hawaii and around the world. Join us and learn more about how your choices and career pathways can be part of the solution!

STORY > SHOT: Onsite Video Competition Students Only

Presented by: John Allen III & Donn Yamamoto, UH STEM Pre-Academy

Project-based learning is a teaching approach that allows students to actively participate in collaborative, real-world problem solving, challenging them to think critically to deepen their knowledge. This workshop will share a few techniques that will help students to value and embrace the process of learning and discovery to solve real-world problems. It will establish a new mindset for project-based learning and take the idea of "good to great" to a whole new level.

TAPPING THE CREATIVE GENIUS OF STUDENTS TO TRANSFORM EDUCATION TECHNOLOGY

Presented by: Stevin Smith, Ka'ana Solutions

Learn about the many ways that you can help your school. An interctive session focused on engaging with technology to better your classroom, school, and community.



MAY 2, 2019 | 8:30 AM - 12:30 PM

Get ready for college! Check out the amazing array of programs available through the University of Hawaii System. Discover the opportunities in Environmental & Physical Sciences, Biological Sciences, Engineering, Veterinary Technology, and more! Engage with University staff to discover college degree opportunities and requirements, campus information, and more!



UH Hilo - Physics and Astronomy, Dept. of Mathematics

UH Manoa - College of Engineering, College of Tropical Agriculture and Human Resources,

(CTAHR), Natural Science, School of Ocean and Earth Science and Technology (SOEST)

Hawaii Community College - ASNS Program, Dept. of Math and Natural Resources

Honolulu Community College - STEM Working Group

Leeward Community College - Student Services

Windward Community College - Academic Affairs, Natural Science, Veterinary Technology

John A. Burns School of Medicine - The Hawaii/Pacific Basin Area Health Education Center



Opportunities,

FOR TEACHERS AND STUDENTS

*no experience necessary!



Sign up for our Lending Library!

The STEM Lending Library contains resource materials and technology devices available for educational use for a subscription fee.

Website: https://stemworkslendinglibrary.myturn.com/library



2019 STEMworks™ Summer Internship!

State-wide Internship for STEMworks[™]High School & College students

REGISTER BY: MAY 10, 2019

SIX WEEK INTERNSHIP: June 10 - July 26, 2019



Hawaii Teacher Con - Code.org Professional Learning Program

For 6-12 teachers. Held at the University of Pheonix Hawaii Campus, Oahu

REGISTER BY: MAY 10, 2019

TEACHERCON HELD: June 8-12, 2019 plus four quarterly workshops



Summer Adventures in Healthcare

For Maui County middle & high school students THREE DAY ADVENTURE: June 3 - June 5, 2019

Register: www.mauicountyhealthcare.org/workshops-events



2019 STEMworks[™] GenCyber Camps

State-wide cyber camp for middle & high school students

REGISTER BY: May 17, 2019

WEEKLY SESSIONS OFFERED: June 10 - July 26, 2019

Register: www.gencyber-hi.org/events













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