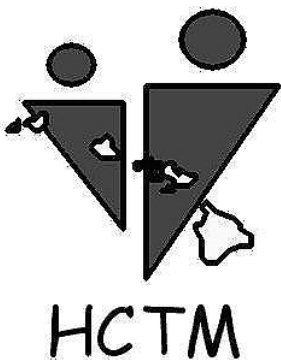


*Common Core:  
Teaching and Learning in  
the 21<sup>st</sup> Century*

Spring 2014 Conference

Hosted by:  
Hawaii Council of Teachers of Mathematics  
and  
'Iolani School  
563 Kamoku St.  
Honolulu, Hawaii

March 1, 2014

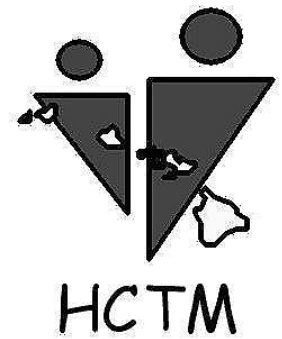


The Hawaii Council of Teachers of Mathematics is a local affiliate of the National Council of Teachers of Mathematics



## A Message from the President of HCTM

Welcome to a wonderful conference that awaits you today. Professional development is so important for teachers and we are happy that we can provide you with standards-based, researched supported activities using rich tasks to engage and improve understanding of difficult mathematical concepts and big ideas. Teachers will leave today with lessons and ideas that they can use in their classrooms and make connections with colleagues which will help Hawai'i's children meet the challenges of today.



We are happy to offer a huge variety of topics exploring both the tech and non-tech variety to meet the needs of any educator. We have worked very hard to bring this special event to you and we think that you will like it very much. We hope that you will make sure that what you see, hear and participate in has an impact on what you do next week, next month and the rest of the school year. We have over 40 sessions for those of you who teach grades k-12. No matter whom you are or what grade level you teach, you will walk away with an experience that will excite you and your students.

I would like to take this opportunity to thank 'Iolani School for the use of their beautiful campus. Thanks to all the wonderful presenters who worked really hard to bring the highest quality professional development. I would also like to thank all the HCTM board members for their hard work and dedication making sure the day runs smoothly. Finally, thanks to all of you for giving up a Saturday to take advantage of this opportunity.

Please take some time today to visit our wonderful exhibitors and find out what they have to offer. They understand that you are important and are here to help in whatever way they can with your equipment and curricular needs.

During this week, do a lot of thinking about how you can take what you saw and apply it to what you are doing. Reflect on your own teaching and how you integrate technology. Connect with colleagues to share ideas and experiences. Finally, relax and enjoy!!

Aloha Nui Loa,

Scott Powell  
T<sup>3</sup> Regional Instructor  
HCTM President  
King David Kalakaua Middle School, Honolulu, HI

## HCTM Board of Directors

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HCTM is currently looking for a middle school director, elementary school director and a student representative. Contact Scott Powell at [David.Powell@notes.k12.hi.us](mailto:David.Powell@notes.k12.hi.us) for more information.

## Special Thanks to...

**Timothy Cottrell**, Head of School at 'Iolani School, for providing the site and support for this conference.

**The faculty and staff of 'Iolani School** for going above and beyond the call of duty in supporting this endeavor on their campus.

**The Key Club students from 'Iolani School** who volunteered their services today.

**The Kamehameha Schools and their Office Service Center** for generously donating their services and materials to publish the program book.

**Dewey Gottlieb, Meryle Hirotsu, Chevron USA, HECO, Jamba Juice, McDonald's, and Pizza Hut** for their generous donation of raffle prizes.

**The Hawaiian Electric Company** for their donation to offset the costs of organizing this conference.

**Pearson** for the donation of conference folders and their continued support.

**The speakers** for devoting their time and effort to preparing their sessions. In addition to their hard work and dedication to teaching, we are also extremely grateful for their willingness to share their knowledge of teaching techniques, new standards and practices, and latest technologies for the benefit of HCTM's members.

**The exhibitors** for planning and setting up their exhibits of the wide variety of educational resource products and learning tools their companies offer to Hawaii educators. We would like to send a special thank you to those exhibitors who have also generously donated to our collection of conference door prizes as well.

**The conference organizers and other volunteers** for somehow fitting publicity, planning, and logistics into their lives to help make this conference a success – along with their families, friends, and colleagues for understanding and offering support throughout this endeavor.

## Exhibitor Information

(Exhibits will be open in the Student Center until 3:00 on Saturday.)

### 3P Learning

Mathletics is the world's most-used digital education resource for numeracy with globally proven results. Mathletics aids teaching and learning around the world and in US schools, districts and dioceses. Mathletics is designed to provide personalized adaptive practice that builds student confidence in their ability to perform on CCSS tests.



### The Audio Visual Company

The Audio Visual Company (AVCO) is a technology solution provider with over 40 years of experience in audio and video (AV) design, integration, and installation services. AVCO maintains AV industry certifications and is the Hawaii affiliate of PSNI, a premium network of AV companies that provide integration services in North America.



### Bedford, Freeman and Worth Publishing

Publisher of High School textbooks and online learning resources. We have a strong focus on AP-Specific content, and we publish Modeling with Math: A Bridge to Algebra II, which serves the MOW II course.



### Cengage

Leading provider of textbooks, resources, and technology in secondary and post-secondary education.



### College Preparatory Mathematics

CCSS aligned grades 6-12 math texts that use problem based learning in student centered classrooms.



### MIND Research Institute

Common Core Mathematics: visual, conceptual web-based mathematics which will prepare your students for CC and SBAC assessments. ST Math is language-independent, CC standards, grade-level specific and compatible with all computer and tablet platforms!



## ORIGO

ORIGO provides a complete education solution to its customers by combining an innovative range of mathematics products with quality professional learning services.

ORIGO Stepping Stones is a world-class mathematics program that seamlessly blends digital and print resources. ORIGO demonstrates a commitment to excellence by creating products that inspire and empower teachers & students.



## Pearson

Pearson is working to create real results that break through the challenges in education today. We partner with educators to deliver new personalized ways of learning through effective scalable assessment, instructional tools, services, and technologies. We help individuals improve learning outcomes and achieve their own definitions of success.



## Quick & Associates

ALEKS is a web-based math program for grades K-12. ALEKS assessment and learning technologies were originally developed by a team

of cognitive scientists and software engineers at the University of California, Irvine, with major funding from the National Science Foundation. ALEKS is founded on groundbreaking research in mathematical cognitive science known as Knowledge Space Theory. Through adaptive questioning, ALEKS accurately assesses a student's knowledge state and then delivers targeted instruction on the exact topics the student is most ready to learn.



## Robert Ho Hawaii

[www.RobertHoHawaii.com](http://www.RobertHoHawaii.com) provides online and print resources for preK to 12 teachers

## Texas Instruments

Supporting each educator's vision of student success in math and science, TI's

versatile education technology, curricular support materials and professional development can help enhance teaching and learning. Visit [education.ti.com](http://education.ti.com).



Education Technology

## University of Phoenix

University of Phoenix, College of Education offers degree programs ranging from elementary and secondary education to administration. Prepare for certification in your state with curricula aligned with national standards. Then get to work shaping lives.



## **Saturday, March 1, 2014 Conference Schedule**

7:30 – 8:30 AM	Registration, Exhibitors, and Continental Breakfast (Student Center)
8:30 – 9:20 AM	Keynote Address by David Masunaga (Seto Hall)
9:35 – 10:35 AM	Session 1 (60 minutes)
10:35 – 11:05 AM	Break/Visit Exhibits (Student Center)
11:10 – 12:10 PM	Session 2 (60 minutes)
12:10 – 1:00 PM	Lunch/Visit Exhibits/Raffle Drawing (Student Center)
1:00 – 2:00 PM	Session 3 (60 minutes)
2:10 – 3:15 PM	Closing Session/Raffle Drawing – Mele Makemakika (Seto Hall)

### **Welcome and Keynote Session**

#### **Teaching the Common Core WITHOUT Technology**

**David Masunaga, 'Iolani School**

Seto Hall

In the BC (before computer) era of mathematics education some of the most profound, interactive and dynamic activities in arithmetic, algebra and geometry could be done in the classroom without the use of technology. See how the Common Core's Standards for Mathematical Practice can be addressed by dozens of essential but forgotten manipulatives from yesteryear, made from common materials like paper, string, rubber bands and even fingers!

### **Closing Session**

#### **Pau Hana with Mele Makemakika – Songs of Mathematics!**

**Dane Camp, 'Iolani School, John Carter, Westlake High, Austin, TX and David Masunaga, 'Iolani School**

Seto Hall

Come celebrate the joy of teaching mathematics! Could there be better way to cap off a full day of sessions than a sing-a-long of your favorite math songs (including the world premiere of Hawaiian math songs) to summarize, explain, or just plain enjoy mathematics? Come prepared for fun, contests, prizes, and, of course, lots of ideas that you can use in your classroom next week!

# Session Descriptions

Sessions are listed alphabetically by presenter's last name  
For room matrix, turn to inside back cover

Elementary

## **Experiencing Different Fraction Constructs Through Sharing Tasks and the Common Core**

**Andrea Aiona, Instructor, University of Hawaii at Manoa**

Room W-102

Fractions are difficult because of the many different meanings associated with them. Participants will engage in “sharing tasks” to develop fraction understanding beyond the predominantly taught part-whole construct. Meaningful hands-on fraction experiences will extend personal conceptual understanding of fractions for elementary (although some middle school teacher may find this useful for remediation) focused practitioners. Explicit connections with the Common Core Standards and Standards for Mathematical Practices will be made.

Elementary, Pre-service, General Interest

## **Finding Our Way: Designing, Implementing, and Assessing a Culturally Relevant Unit Engaging 4th Grade Students**

**Andrea Aiona, Justin Walczyk, Kirstie Kane, University of Hawaii at Manoa**

Room W-102

From August to December 2013, a university instructor and a 4th grade fully inclusive class' teachers – a special education and the regular education teacher – worked together to conduct a culturally relevant mathematics unit based on Hokule'a's World Wide Voyage. This presentation will share the process we engaged in and what resulted.

Elementary

## **The Importance of Children Making Length Measurement Tools**

**Andrea Aiona, Instructor, University of Hawaii at Manoa**

Room W-102

Students have such difficulty using pre made measuring tools such as rulers and meter sticks because they have not often ITERATED in meaningful ways. Through hands-on experiences participants will engage in creating their own, see how they can be used to support several Common Core Standards domains and Standards for Mathematical Practices. And in the then build personal awareness of the metric system and how to better teach it to children with highlighting its usefulness for teaching fractions and our base-10 system.

Middle, Secondary

## **Technology as a Tool of Inquiry in the Modern Math Class**

**Nathan Austin, Curriculum & Online Training Manager, CASIO**

Room W-213

What do Bicycle Races, Fir Trees, and Multiple Choice Tests all have in common? They are great investigations to help students make sense of and take ownership of mathematics. Activities will be shared and handouts provided.



Middle, Secondary

### **Inquiry and Technology as They Support the Common Core** **Nathan Austin, Curriculum & Online Training Manager, CASIO**

Room W-213

We will explore some real-world problems that raise interesting questions with sometimes surprising results. Investigations will include use of the graphing calculator as a tool for inquiry. Activities will be shared and handouts provided.

Middle, Secondary

### **Designing Effective Tasks for High School Algebra and Student Engagement** **Dr. Lorraine Baron, Assistant Professor, University of Hawaii**

Room W-204

Aloha! Please join me in a two-part session. I have partnered with high school teachers to design and develop tasks that would help us try to leave most of the “learning work” to the students, while still facilitating the class to achieve practice and content standards. During part 1 of this workshop, you will participate as “students” and engage in some tasks designed to address quadratic functions. I will explain the design process we went through as teachers, and tell you the “implementation story” we experienced. During the second part of the workshop, we will look at student examples of work, and discuss how we could support each other in continuing to develop resources like this that we can share.

Middle, Secondary

### **Using Students Ideas to Develop a Deeper Understanding of Mathematical Concepts** **Francie Bostwick, Associate Professor, Southern Oregon University**

Room W-214

What kinds of opportunities do you provide for students to share their own mathematical ideas? A Number Talk is a 10-minute investigation into mathematical concepts to foster students’ thinking and creativity, and develop a safe environment for students to choose and share their own ideas in the setting. Students make sense of problems, address reasons for their thinking, have opportunity to process misconceptions and deepen their understanding of and make connections among concepts. Participants will engage in Number Talk and work collaboratively to develop Number Talks for their own classroom use.

Secondary

### **Tell Me A Story...**

**Dr. Dane Camp, ‘Iolani**

Room W-304

Everyone loves a story. Come hear about the mathematical adventures of the greatest philosopher of all time. Socrates and his pupil, Amphibianes. Join Sigma, the square, in a search for higher dimensions. Reacquaint yourself with the Cat in the Hat. Groan to the forced rhymes of fill in the blank poems. We’ll even sing a song or two. Experience the joy of the creative side of teaching mathematics and feel free to swap and steal whatever you think you can use in your own classroom next week!

Secondary

## **Implementing and Learning Math for Understanding: A 21<sup>st</sup> Century, College Readiness, Common Core Challenge**

**Dr. John Carter, Principal, Westlake High School, Austin, TX**

W-304

This session examines the overlap between 21<sup>st</sup> Century Skills, College Readiness, and the Common Core and presents a framework for planning and reflecting on mathematics lessons, tasks, and assessments.

Elementary

## **Fraction (Or Fractured?) Understanding**

**Debi DePaul, Manager of Professional Learning, ORIGO Education, Inc.**

Room W-201

Do you wonder why students struggle when learning fractions? This interactive workshop will focus on the underlying, and often missing, concepts necessary for students to be successful with fractions. We will explore different representations and interpretations of fractions and why they are so critical. We will also consider how the meaning of the numerator and denominator change when the fractions are interpreted in different ways.

Elementary

## **Building Links Between Multiplication and Division: Concepts and Skills**

**Debi DePaul, Manager of Professional Learning, ORIGO Education, Inc.**

Room W-201

Multiplication and division are closely linked. This session will demonstrate strategies that can be used to reinforce the connection between these operations and to develop flexible thinking. In particular the session will show practical ways to develop the concepts and skills for both operations through the use of visual models and games.

General Interest

## **Lesson Design for Changing Times**

**John Dunaway, Cengage**

Room W-213

According to Ray Kurzweil's historical trends of exponential growth charts for predicting the future (<http://theemergingfuture.com/speed-technological-advancement.htm>) if technology continues to grow at its current average annual rate, technology will be about a million times more advanced in twenty years. Faster and faster seems never fast enough. As an instructor, this can be exciting and terrifying at the same time. As our future students continue to grow through Middle and High School, they will be exposed to new technologies – if not in school, in their personal lives. In this session, I want to focus on how to use new cloud resources to engage the learner, to make content meaningful and formative, and to simplify the process of communication through your personal websites to the students – hopefully to increase their personal interaction with technology resources you have prepared for them.

General Interest

## **Pearson – Focusing on Outcomes and Efficacy**

**Jessica Elbern, Executive Publisher Representative, Pearson**

Room W-105

Pearson's move to focus on outcomes rather than inputs. Learn more about what Pearson is doing to partner with organizations to push the focus on outcomes and efficacy vs. inputs.

Elementary, Middle, Secondary, General Interest

### **Using Mathletics in a Blended Learning Classroom**

**Aubrey Escobar, E learning Specialist, 3P Learning**

Room W-206

The educational benefits of blended learning are well known. This presentation will examine what blended learning in the math classroom can look like using examples from Mathletics. This presentation will also explore in more detail how teachers can easily provide individualized CCSS aligned curriculum practice and instruction for their students based on real-time diagnostic formative reporting.

Middle, Secondary, Pre-Service, General Interest

### **Engage All Your Students by Visualizing the Concepts When Using Mathematica**

**Abraham Gadalla, Lighthouse Academy of Nations, MN**

Room W-308

Create your assignments, quizzes, and tests and give instantaneous feedback by using Mathematica.

Middle, Secondary

### **Geometry Through Motions**

**Kathleen Goto, 'Iolani School**

Room W-212

Students use reflections, translations, rotations, and dilations to construct the geometric knowledge covered in a more traditional proof-based geometry course. While students explain and share their thinking with their classmates, they are challenged to refine their understanding of each concept. Come see what this is all about!

Secondary

### **Hands-on, Minds-on Math – An Offering of Homegrown Math Projects and Activities**

**Mark Hines, Director, Mid-Pacific Exploratory**

Room W-201

Our innovative interdisciplinary program – Mid-Pacific Exploratory – includes many teacher and student designed experiences and activities that focus on authentic, student-driven project-based learning. We will share a list of activities including descriptions, timelines, rubrics, and student samples to look at where these project and activities are mapped to content standards including Common core. Since our school has a one to one iPad program, it will include a discussion about the use of mobile technologies to support constructive hands-on learning.

Elementary

### **Word Problems and Operations in the Early Grades (K-2)**

**Stacie Kaichi-Imamura, Curriculum Coach & Phyllis Nakama-Kawamoto, State Math Resource Teacher**

Room W-209

This session is focused on Grades K-2. Join us in a hands-on learning session about the different problem types, model drawing in the early grades, solving addition and subtraction problems and resources.

Elementary

### **Counting and Cardinality: Back to the Basics**

**Stacie Kaichi-Imamura, Curriculum Coach & Phyllis Nakama-Kawamoto, State Math Resource Teacher**

Room W-209

This session is for early childhood math teachers (specifically Pre-K to grade 1). Come join us for an informative, hands-on session focused on the Counting & Cardinality and Operations & Algebraic Thinking. Grab some ideas that you can take away and use in your classroom with your children on Monday!

Elementary, Middle, Secondary

### **Implementing Real World Problem-Based Lessons**

**Robert Kaplinsky, Teacher Specialist, Downey Unified School District, CA**

Room W-206

Students are excited to learn math when they see it as trying to find the answer to a problem they care about. We will work through a problem, discuss how it supports the Common Core State Standards, and address potential implementation issues. Attendees will leave with access to hundreds of problems that are available on the Internet and ready to be used the next day.

Elementary, Middle, Secondary, General Interest

### **Insights from Participation in the Math Teachers' Circle Hawaii (MaTCH) on Classroom Application of the CCSS Mathematical Practices: Two Math Teachers' Perspectives**

**Gary Kikuchi & Jill Shimabukuro**

Room W-301

Math Teachers' Circle Hawai'i (MaTCH) provides a forum for teachers, mathematicians and mathematics educators to investigate interesting mathematical problems and discuss how to go about solving them through a collaborative and open process. In addition, MaTCH participants discuss how such a process can be developed and fostered in classroom settings for our students. Under the CCSS mathematical practices requirements, students are asked to understand and use eight standards when they investigate mathematical situations. In this session, an elementary math teacher and a secondary math teacher discuss insights they gained from their participation in MaTCH through the sharing of classroom activities and assessments.

Middle, Secondary, Pre-service

### **Getting Started with the TI-Nspire App for iPad**

**Romi Kim, Texas Instruments**

Room W-301

This workshop is designed for educators who are interested in or are just beginning to use the Ti-Nspire App for iPad (either CAS or numeric). It will cover the basics of getting started and teaching with the Apps. Participants are asked to bring their own iPads with the App installed.

Elementary, Middle

### **What We Have Learned in 5 Years Using Singapore Math**

**Dan Kitashima & Jodie Kelekolio, Ka Waihona o ka Naa'uao PCS**

Room W-306

Learn about the history, implementation, the struggles and gains, some of the teaching strategies we use, and talk story about your questions concerning the Singapore Math Curriculum.

Elementary, Middle School

## **Singapore Math and Model Drawing I & II**

**Melvin Lau & Sandra Takara , Aliamanu Elementary**

Room W-306

Math students in Singapore score consistently at the top among nations. One reason is Singapore's emphasis on Model Drawing, a powerful problem-solving strategy that makes difficult math problems and concepts visual. Hence, Common Core Standards are patterned after Singapore Math.

Middle, Secondary

## **Standards of Mathematical Practices in the CCSS**

**Michael Long, Kapolei High School**

Room W-204

Learn about a process to evaluate the mathematical practices in the CCSS in your activities that are used in your class.

Secondary

## **Here's the Graph of the Derivative: Tell me the Function**

**Lin McMullin, 'Iolani**

Room W-212

For AB and BC Calculus Teachers: A question requiring students to interpret the graph of the derivative of a function has appeared on every recent AP exam. Yet for the most part students score poorly. Participants will be shown all the ins-and-outs of this common type problem and will learn different ways of teaching them to their students. Questions from recent exams will be discussed as examples.

Secondary

## **Accumulation and Functions Defined by Integrals**

**Lin McMullin, 'Iolani**

Room W-212

For AB and BC Calculus teachers: This presentation will discuss one of the standard type questions on the AP Calculus exams: accumulation and functions defined by integrals. These questions are presented in a "real world context and require careful reading. Many textbooks do not discuss this topic at all and others only briefly. Participants will learn the general approach and how to apply the key idea in various situations. Examples from past exams will be included.

Elementary, Pre-service

## **Using Literature in Math to Address 8 Mathematical Practices**

**Francis Ogata, Math Specialist, Pearson**

Room W-209

Come join us for some hands-on activities that will link Math Literature with the math practices.

Elementary, Middle, Secondary

## **ALEKS Math**

**Josh Schuette, Quick & Associates**

Room W-105

ALEKS is a web-based math program that provided individualized learning and assessment. Using artificial intelligence ALEKS accurately assess a student's knowledge and delivers targeted instruction on the exact topics the student is ready to learn.

Elementary, Middle, Secondary

### **Persistence in Problem-Solving**

**Dr. Mary Pat Sjostrom, Associate Professor, Chaminade University**

Room W-308

Many students equate excellence in math with speed in problem solving. If they cannot find an answer quickly, they are unwilling or unable to persist. Learn about a method to encourage students to investigate a single problem at length, and to communicate mathematical thinking. Receive detailed directions and sources of problems.

Secondary

### **Using the iPad in Your Math Classroom**

**Brad Smith, Teacher, Westlake High School, Austin, TX & Dr. John Carter, Principal**

Room W-304

The iPad can be a useful tool to help your students learn mathematics. In this session the presenter will share some of his favorite apps for the mathematics classroom.

Elementary, Middle, Secondary

### **SMART Tools that Teach and Engage Students in Math**

**Terri Trevathan, Education Consultant, The Audio Visual Company, and Jennifer Lee**

Room W-215

SMART Notebook math Tools enables educators to represent concepts symbolically, numerically, and visually. Teachers are provided with the tools they need to progress through an entire math concept. See how these SMART tools can be utilized in both an elementary and secondary classroom setting, with lessons aligned to the Common Core State Standards.

Middle, Secondary, Pre-service, General Interest

### **Tetrahedral Kites**

**Lynda Vaughn, retired, and Julien Vaughn**

Room W-101

Join the fun in this always popular session. You will make your own tetrahedral kite and receive patterns and instructions for your classroom. Great for a special classroom project or for use with after school programs and math clubs.

Middle, Secondary, General Interest

### **Fun with Origami Boxes**

**Lynda Vaughn, retired, and Julien Vaughn**

Room W-101

Have fun making a colorful origami "tsuzura" box. You will create a multicolor box with a decorative lid, a great project for your students, or for use as a gift box. This is a good item for those just beginning origami, or for more experienced folders.

Pre-service

## **From Observation to Implementation, Innovative Strategies that Support a Culture for Learning Mathematics**

**Linda Venenciano, Jo-Hannah Valdez, Ashley Deeks, Edward Nakata, Drew Henmi**

Room W-214

One of the most pressing concerns of new and soon-to-be teachers is classroom management. Beyond behavioral management, how do teachers create and maintain classroom culture that fosters the development of mathematical dispositions? Secondary mathematics teacher candidates will discuss their experiences and evolving perspectives about managing student engagement. They will also share strategies that foster the development of mathematical practice, as described in the Common Core State Standards.

Elementary

## **Facilitating Development of Number Sense in Elementary Students**

**Seanyelle Yagi**

Room W-215

What does it mean to have number sense? How can teachers help their students develop a sense of numbers? There will be an exploration of the definition of number sense, behaviors of students who have number sense, and routines that help students develop number sense. Participants will leave with practical activities, tasks and routines to help students develop number sense.