Coding and Robotics for All
to Close the Math Achievement Gap
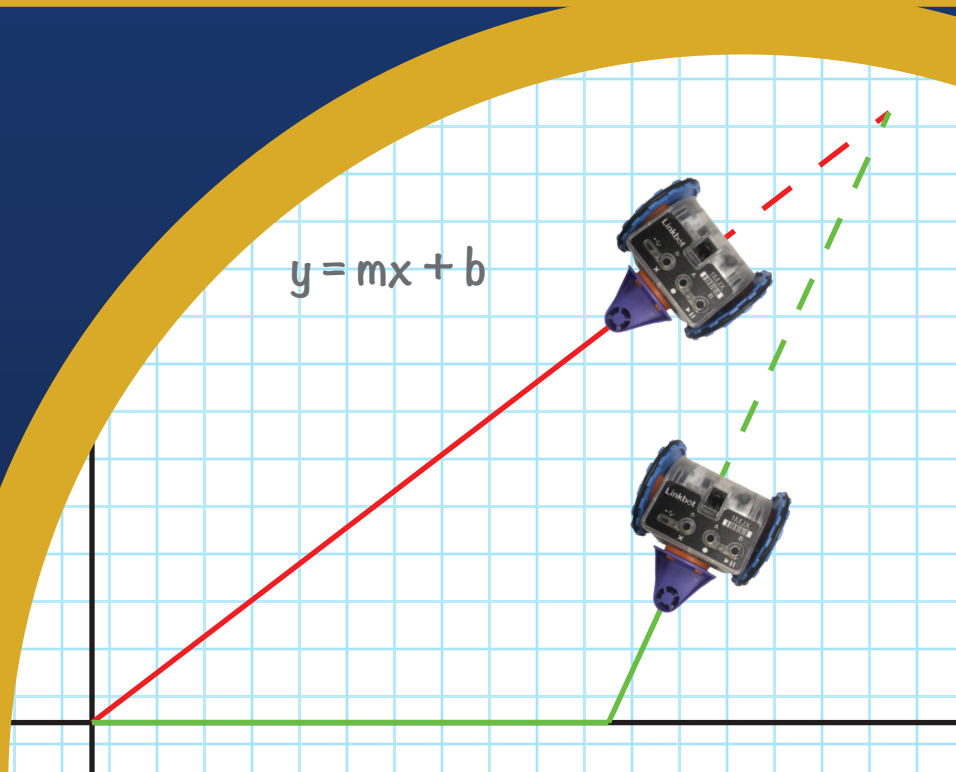
2020 Symposium
on Integrated Computing and STEM Education

February 24, 2020
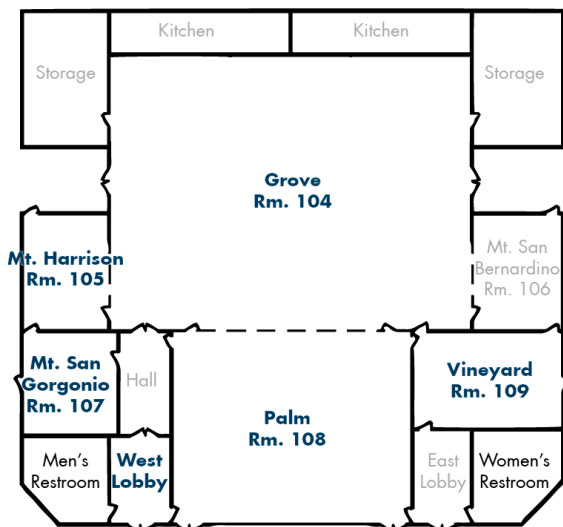
University of Redlands Orton Center

$y = mx + b$

UC**DAVIS**
C–STEM Center

REDLANDS
EXCELLENCE IN EDUCATION
UNIFIED SCHOOL DISTRICT

UNIVERSITY OF
Redlands

Conference Overview

Time	Event	Room
7:30am–8:20am	Breakfast and Registration	West Lobby, 104
8:20am–8:25am	Getting Started Deepika Srivastava, STEAM and Innovation Coordinator, Redlands USD	104
8:25am–8:35am	Welcome Dr. Ken Wagner, Assistant Superintendent of Educational Services, Redlands USD	104
8:35am–8:45am	C-STEM Program Dr. Harry Cheng, Professor & C-STEM Center Director, UC Davis	104
8:45am–9:00am	Keynote Speech Tim Taylor, Executive Director, Small School District Association	104
9:00am–9:30am	Superintendents Plenary Panel Moderator: Dr. Jose Lalas, Professor and Director, Center for Educational Justice, University of Redlands Mauricio Arellano, Superintendent, Redlands USD Randal S. Bassett, Superintendent , Fontana USD Cynthia Parulan-Colfer, Retired Superintendent, Hacienda La Puente USD	104
9:45am–10:45am	Breakout Session 1 (Details Pages 8-9)	104, 105, 107, 109
11:00am–12:00pm	Breakout Session 2 (Details Pages 10)	104, 105, 109
12:00pm–1:00pm	Lunch and Teacher Plenary Panel Moderator: Julie Swan, Director, Secondary Education, Redlands USD Samantha Higbee, Math Teacher, Orange Grove Middle, Hacienda La Puente USD Pamela Matea, Math Teacher, Southridge Tech Middle, Fontana USD Allen Thoe, Math and CS Teacher, Citrus Valley High, Redlands USD	104
1:15pm–2:15pm	Breakout Session 3 (Details Pages 11)	104, 105, 109
2:30pm–3:30pm	Breakout Session 4 (Details Pages 12)	104, 105, 109
3:30pm–4:00pm	Closing Remarks and Raffle Announcer: Dr. Larry Lagerstrom, Chief Academic Officer, Barobo, Inc. 5 Arduino Starter Kits, 1 Linkbot Starter Kit, 1 Linkbot Super Kit, 1 Linkbot Advanced Kit	104

Maps

Message from the C-STEM Center Director

Dear C-STEM Symposium Attendees,

The UC Davis C-STEM Center, in collaboration with Redlands Unified School District and University of Redlands, is pleased to co-organize the first C-STEM Symposium on Integrated Computing and STEM Education in Southern California on February 24, 2020. Educators across California are invited to this one-day event packed with inspiring speeches and hands-on sessions about transforming math, CS, and CTE education with coding and robotics. The theme of the symposium is **Coding and Robotics for All to Close the Math Achievement Gap**.

Experienced C-STEM Superintendents, including Mauricio Arellano from Redlands Unified School District, Randal S. Bassett from Fontana Unified School District, and Cynthia Parulan-Colfer from Hacienda La Puente Unified School District, will discuss how the C-STEM program has a lasting impact on student engagement and performance district-wide. They will also share insights on how new districts can start integrating C-STEM coding and robotics in STEM classrooms to close the math achievement gap.

We will also feature a plenary session with teachers who will discuss how to get started with the C-STEM program, share their experiences on integrating coding and robotics into their regular STEM courses with a focus on math, and describe its impact on students.

The C-STEM program continues to inspire all students through exciting, hands-on, interdisciplinary curriculum with a focus on math with coding and robotics; we encourage you to take advantage of the strategies and resources presented today to enhance creative problem solving with robotics in your classrooms and beyond. We have a wide variety of breakout sessions providing insights on topics such as teaching and pedagogy, technology, inclusion, RoboPlay Competition, and GIRL/GIRL+ Camps.

Whether you are new to C-STEM and looking forward to seeing our technology in action, or you have been with us for years and looking for more tips on inspiring creative problem solving, our Student Showcase Expo provides the perfect opportunity to experience how your students can explore their creativity and imagination with hands-on activities for building, making, and realizing physical models.

We would like to give a special thanks to Redlands Unified School District and University of Redlands for partnering with us to co-organize this Symposium, as well as all presenters and participants of this symposium. We look forward to continuing our collaboration to bring hands-on coding and robotics to K-12 classrooms to close the math achievement gap.

Sincerely,
Harry H. Cheng
Professor and C-STEM Center Director

Symposium Organizing Committee

Dr. Brittney Beck, Assistant Professor, Dept of Teacher Education, CSU Bakersfield

Joanne Chan, Coordinator of Instructional Services, Hacienda La Puente Unified School District

Dr. Harry Cheng, Professor and Director, UC Davis C-STEM Center

Jesus Esquibel, Lecturer, Dept of Teacher Education, CSU Bakersfield

Dr. Judy Fancher, Assistant Superintendent of Curriculum, Instruction, & Assessment, Hacienda La Puente Unified School District

Merry Kim, Associate Dean, CTE, Coastline Community College

Dr. Larry Lagerstrom, Chief Academic Officer, Barobo, Inc.

Dr. Jose Lalas, Professor and Director, Center for Educational Justice, University of Redlands

Sophia Mendoza, Director, Instructional Technology Initiative, Los Angeles Unified School District

Sonal Patel, Digital Learning & Innovation Coordinator, San Bernardino County Office of Education

Amy Pedersen, STEAM Coordinator, Los Angeles Unified School District

Dr. Binsen Qian, Technology Officer, UC Davis C-STEM Center

Daniel Ryan, Education Service Manager, UC Davis C-STEM Center

Kristen Sandler, Coordinator, Secondary Mathematics, Fontana Unified School District

Omar Shepherd, Curriculum Specialist, STEM/Career Education (CTE), Orange County Department of Education

Deepika Srivastava, STEAM & Innovation Coordinator, Redlands Unified School District

Julie Swan, Director of Secondary Education, Redlands Unified School District

Dr. Kenneth Wagner, Assistant Superintendent of Educational Services, Redlands Unified School District

Duane Wesley, Chair, Computer Science Department , San Diego Mesa College

Dr. Teresa W. Aldredge, Board President, Umoja Community Education Foundation
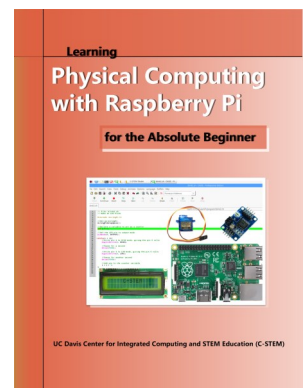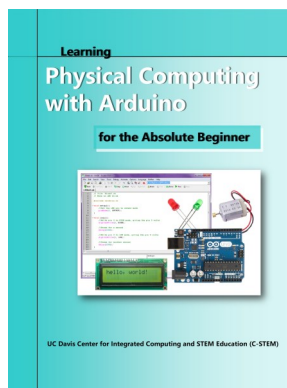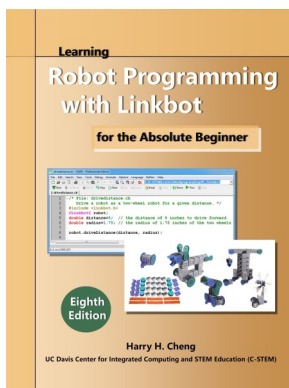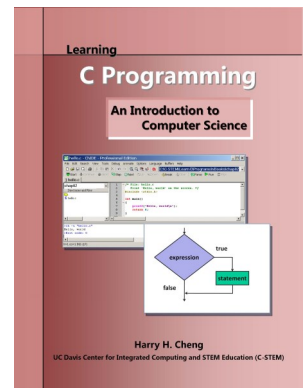
C-STEM Math-ICT Curriculum

https://c-stem.ucdavis.edu/curriculum

C-STEM (Computing, Science, Technology, Engineering, and Mathematics) is a UC Approved Educational Preparation Program for Undergraduate Admission for both K-12 and Community College students to all UC campuses. The A-G approved C-STEM courses at the UCOP web site can readily be added in a hig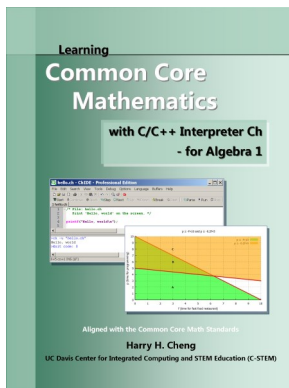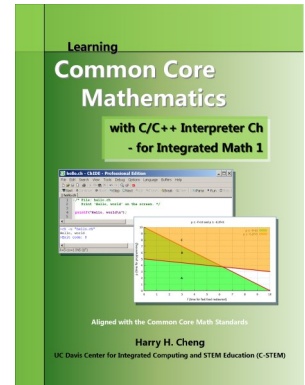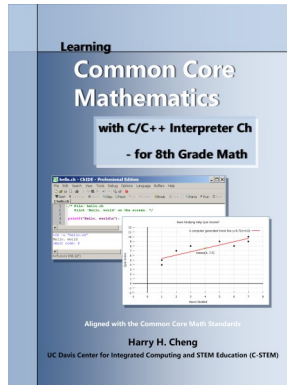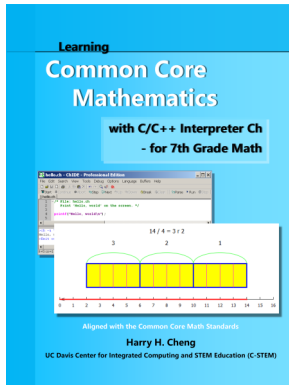h school's A-G course list. C-STEM Math-ICT Curriculum provides students with 13-years of experience learning math with coding and robotics. Integrating coding and robotics into math education facilitates an engaging, rigorous course that promotes critical thinking and creative problem solving. Many students who take C-STEM Math with Coding and Robotics courses have fun learning often without associating the course with their struggles in a traditional math class. This unique hands-on approach provides students with the application-based learning they need to gain a thorough understanding of the materials.

Read Some of our Success Stories!

Selected Samples of C-STEM Textbooks and Curriculum

Learning Common Core Mathematics with C/C++ Interpreter Ch - for 7th Grade Math
Aligned with the Common Core Math Standards
Harry H. Cheng
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning Common Core Mathematics with C/C++ Interpreter Ch - for 8th Grade Math
Aligned with the Common Core Math Standards
Harry H. Cheng
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning Common Core Mathematics with C/C++ Interpreter Ch - for Integrated Math 1
Aligned with the Common Core Math Standards
Harry H. Cheng
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning Common Core Mathematics with C/C++ Interpreter Ch - for Algebra 1
Aligned with the Common Core Math Standards
Harry H. Cheng
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning Computer Programming with Ch for the Absolute Beginner
Third Edition
Harry H. Cheng
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning C Programming An Introduction to Computer Science
Harry H. Cheng
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning Robot Programming with Linkbot for the Absolute Beginner
Eighth Edition
Harry H. Cheng
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning Physical Computing with Arduino for the Absolute Beginner
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Learning Physical Computing with Raspberry Pi for the Absolute Beginner
UC Davis Center for Integrated Computing and STEM Education (C-STEM)

Upcoming C-STEM Professional Development Events

https://c-stem.ucdavis.edu/pd

No coding or robotics experience is required to learn how to integrate C-STEM coding and robotics into your classroom. C-STEM PD provides K-14 teachers with the knowledge and skills necessary to introduce industry standard computer programming and robotics into their STEM classes and afterschool programs. Participants explore how to use UCOP A-G Approved C-STEM Math-ICT curriculum to thoroughly prepare their students for college and careers with engaging, hands-on, and relevant lessons, activities, and exercises. Teachers discover unique strategies for facilitating a classroom environment integrated with the latest technologies.

Upcoming Events		
Event	**Location**	**Date**
1-Hour Webinar	Online (FREE!)	1st Tues. Every Month
2-Day Workshop	Coalinga, CA	Feb. 27-28
2-Day Workshop	Costa Mesa, CA	Mar. 4-5
2-Day Workshop	Redlands, CA	Mar. 9-10
2-Day Workshop	San Diego, CA	Mar. 18-19
2-Day Workshop	San Luis Obispo, CA	Mar. 23-24
2-Day Workshop	Davis, CA	Mar. 28-29
1-Week Institute	Bakersfield, CA	Jun. 1-5
1-Week Institute	Davis, CA	Jun. 22-26
1-Week Workshop	Davis, CA	Jun. 29 - Jul. 3
1-Week Institute	La Puente, CA	Jul. 13-17
1-Week Institute	Redlands, CA	Jul. 20-24

"This was incredible. I have been to A LOT of trainings and this was by far the best!"

- Allen Thoe, CS Teacher, Citrus Valley HS, CA

2-Day Workshop
Provides an introduction to C-STEM, RoboBlockly, Linkbots, Ch Programming, and Arduino. Primarily geared for teachers and district coordinators to become familiar with C-STEM implementation materials.

1-Week Institute
The best option for beginners, especially Math, Science, and CTE teachers. This PD starts from the absolute beginning and builds the skills teachers need to utilize C-STEM Math with Coding and Robotics as well as Arduino into their classroom teaching.

"Lots of information, filled up my brain for the week, but all good stuff!"

- Alan Aceto, Comptuer Programing Teacher, Cope MS, CA

1-Week Workshop
More advanced teachers can explore higher level applications of Linkbots, Raspberry Pi, and Arduino to create sensor-based robotics systems. At least 1 year of experience working with coding, robotics, and Arduino is recommended.

On-Site Training
No experience necessary, can be tailored for brand-new beginners or experienced technology veterans. This training is custom-built to align with your school or district's implementation of C-STEM whether you're doing Math, Computer Science, Robotics, Physical Computing, or any other C-STEM topic.

"I really loved this training. In over 20 years of teaching, I can't remember another one I enjoyed so much."

- Sandy Anderson, Math Teacher, La Sierra HS, CA

Check Out Our Upcoming Events!

Girls in Robotics Leadership (GIRL/GIRL+) Summer Camps

http://c-stem.ucdavis.edu/girl/

Job Opening: GIRL/GIRL+ Program Manager
Apply by 02/29/2020: bit.ly/2OtePv1

GIRL and GIRL+ camps are designed as a Camp in a Box so that any school, district, college, or university can bring the program to their location. GIRL and GIRL+ camps are free for the participants and offered at local sites to remove obstacles for middle and high school girls who wish to participate. You can host your own GIRL and GIRL+ camps at your location using C-STEM GIRL/GIRL+ camp curriculum. Reach out to us to learn more.

GIRL Camp

C-STEM's GIRL camp is a week-long summer program geared for middle school girls entering 7th and 8th grade. This camp targets girls at a critical stage in their development when most girls lose interest in STEM. GIRL Camp aims to foster their interest in STEM subjects through peer mentoring and engaging hands-on coding and robotics activities. GIRL camps facilitate a positive environment for young girls to explore science and technology beyond the classroom while boosting their confidence and self-esteem through group projects and presentations. Campers are inspired to serve as leaders and role models to other young girls and encouraged to create and join robotics clubs in their schools as well as to participate in the RoboPlay competition.

Scan For More!

GIRL+ Camp

High school girls entering 10th, 11th, and 12th grade can benefit from the C-STEM GIRL+ camps, which are specifically designed to motivate high school girls to pursue higher education in STEM fields. GIRL+ provides girls with an in-depth look into more advanced coding and physical computing with Arduino and robotics. Girls learn teamwork and leadership skills through integrated, hands on coding, Arduino, and robotics activities. Campers are inspired to serve as leaders and role models to other young girls, as well as mentors to middle school girls.

FREE For Students!

Get in Touch: girlcamp@c-stem.ucdavis.edu

2020 RoboPlay Theme: Adventure and Exploration

https://c-stem.ucdavis.edu/roboplay

RoboPlay Competition is an annual culminating event in May for the C-STEM program. The event brings the C-STEM community together to engage students in project-based team activities and to showcase their accomplishments and creativity.

RoboPlay Challenge Competition

RoboPlay Challenge Competition is a theme-based level playing field robotics competition for students in grades 5-12. The competition challenges students to creatively use modular robots and accessories to complete various tasks. The competition arena and specific challenges will be unknown to participants until the day of the competition. Using their math, programming, and problem solving skills, student teams try to most efficiently obtain the highest score for each task on their own.

RoboPlay™
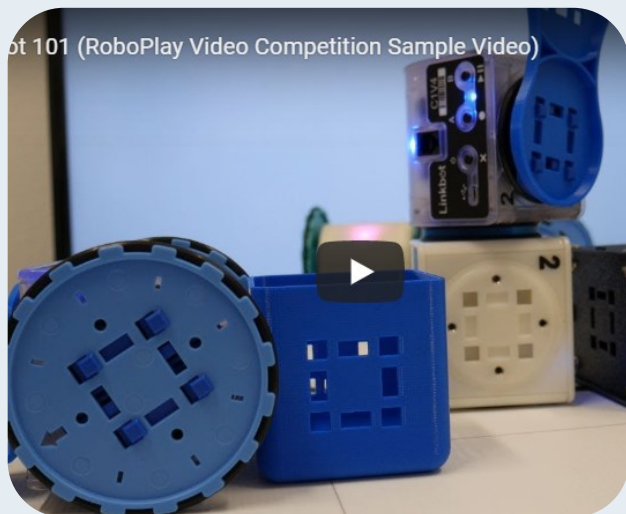
RoboPlay Video Competition

RoboPlay Video Competition is a robotics-centric video competition for students in grades 5-12. It is designed for students to learn robotics while having fun and exploring their creativity in writing, storytelling, art, music, choreography, design, video editing and film production, and at the same time seamlessly learning C-STEM subjects.

Keynote Speaker: 8:45am—9:00am

Tim Taylor
Executive Director, Small School District Association

Equity in Math & CS Education by Closing the Math Achievement Gap

Tim Taylor previously served Butte County as Superintendent of Schools from 2012 to 2019. He also has served as Assistant Superintendent at Sacramento County Office of Education and as a Director for the Elk Grove Unified School District. From 2014-2018, Tim was an Executive Board Member for the Small School District Association (SSDA), which serves the diverse students and communities for a large number of small school districts throughout California. Since July 2019, he serves as the SSDA Executive Director. He is a huge advocate for C-STEM. Throughout his career, he has worked on various initiatives to ensure all students have access to technology and educational technology resources to provide equity in education, especially in small and rural schools.

Teacher Plenary Panel: 12:30pm—1:00pm

Hands-on Coding and Robotics for Math from the Perspectives of Teachers

Moderator: Julie Swan, Director, Secondary Education, Redlands USD

Panelists:

Samantha Higbee
Math Teacher, Orange Grove Middle, Hacienda La Puente USD

Samantha Higbee graduated with honors from Humboldt State University, earning a Bachelor of Science Degree in Zoology and Biology. She recently received a Master Degree in Curriculum and Instruction from Grand Canyon University. Samantha has been teaching middle school math and science in Hacienda La Puente Unified School District for 18 years. When offered the opportunity to teach C-STEM to eighth-graders, she jumped at the chance to help students improve their math abilities by integrating robotics.

Pamela Matea
Math Teacher, Southridge Tech Middle, Fontana USD

Pamela Matea has been teaching middle school Math and Science for 13 years. She got involved with robots through a STEAM elective class she taught for two years. Fontana Unified School district adopted the C-STEM curriculum in 2018 and she was brought in to inspire students with hands-on activities with computing and robotics. She was honored as the C-STEM Teacher of the Year in 2019 and is looking forward to bringing a team to the Irvine RoboPlay competition in May.

Allen Thoe
Math and CS Teacher, Citrus Valley High, Redlands USD

Allen Thoe graduated from UC Davis in 2001 with a B.S. in Physics. He taught math for 11 years at Foothill High School in Pleasanton, CA before moving to Redlands where he has taught for 6 years (computer science and math). Aside from teaching, he is also the girls soccer coach and AVID aviation pilot (Paragliding, hang gliding and Single Engine land airplanes). He has two daughters (ages 19 and 14) with his oldest being a Computer Science Major at UC Santa Cruz. One of the reasons he switched to teaching computer science was because his daughter wanted to take the class but it was not offered at his school.

District-wide Coding and Robotics to Close the Math Achievement Gap

Moderator: Dr. Jose Lalas, Professor and Director, Center for Educational Justice, U. of Redlands

Panelists:

Superintendent Mauricio Arellano
Redlands Unified School District

Mr. Arellano was selected as the Superintendent of the Redlands Unified School District on August 22, 2017, with a unanimous vote of the members of the Board of Education and started at the helm on September 18, 2017. Redlands Unified School District is made up of approximately 21,000 students and 1,800 employees. The District boundaries include the cities of Redlands, Loma Linda, Highland and a small portion of San Bernardino as well as the communities of Mentone and Forest Falls. Prior to his arrival to the Redlands Unified School District, he served as the Assistant Superintendent of Human Resources for the Palm Springs Unified School District for fourteen years. Previous to his assignment in Palm Springs, he served for twelve years as the Certificated Director of Personnel, Elementary Principal, Elementary Vice-Principal and Elementary Teacher for the San Bernardino City Unified School District.

Superintendent Randal S. Bassett
Fontana Unified School District

Randal Bassett has a unique background that combines experience in the corporate sector, software development multiple Fortune 500 companies, and over 25 years of management experience in the education sector. Bassett currently serves as the Superintendent for the Fontana Unified School District, where the district has been at the forefront in the implementation of computer-science immersion and other innovative programs.

Retired Superintendent Cynthia Parulan-Colfer
Hacienda La Puente Unified School District

Cynthia Parulan-Colfer was the Superintendent of the Hacienda La Puente Unified School District, the largest school district in the San Gabriel Valley, until January, 2020. The District serves more than 49,000 students; including 19,000 Pre-K-12 and 30,000 adult education students. Prior to the 2014 school year, she served as the Deputy Superintendent and Associate Superintendent of Adult & Continuing Education. Mrs. Parulan-Colfer brings over 25 years of educational leadership experiences, including that of ESL classroom teacher, program specialist and site administrator in adult education, and central office leadership positions as Interim Superintendent, Deputy Superintendent, Associate Superintendent of Adult & Continuing Education, and Superintendent of the La Puente Valley Regional Occupational Program.

Room 104

(E) (M) (H) (B)

Getting Started with Hands-on C-STEM Coding, Robotics, and Curriculum for the Absolute Beginner

Facilitator:
Daniel Ryan, Education Service Manager, UC Davis C-STEM Center

Description:
Learn how to get started with C-STEM coding and robotics from the very beginning. This session will cover an overview of the C-STEM program and provide first-hand experience on getting started on your own computer. Experience how easy it is to set up and how fun it can be to learn through coding and robotics.

Room 109

(E) (M) (H) (B)

Arduino: Introduction to Basic Electronics and Creative Problem Solving for Physical Computing

Facilitator:
Alan Aceto, AVID Teacher, Cope Middle, Redlands USD

Description:
Arduino is the most popular Do-It-Yourself (DIY) platform for simple electronics and robotics. This session will explore Arduino and how it can be used to teach students math, science, engineering, and technology with simple circuitry, creative problem solving, and physical computing.
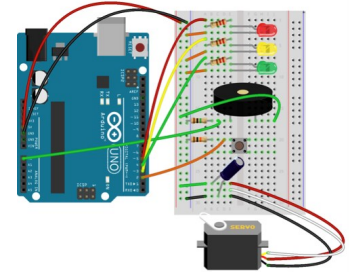
Legend

Room Number (see map)

(E) Appropriate for Elementary School Teachers

(M) Appropriate for Middle School Teachers
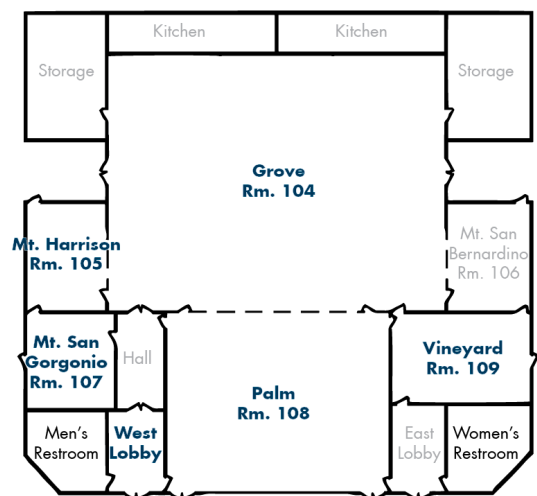
(H) Appropriate for High School Teachers

(A) Appropriate for Administrators

(B) BYOD—Bring Your Own Device
Windows XP or MAC OS 10.7.5 or higher unless specified.
Pre-install software from *https://c-stem.ucdavis.edu/downloads/*.

Kitchen | Kitchen
Storage | Storage

Grove Rm. 104

Mt. Harrison Rm. 105

Mt. San Bernardino Rm. 106

Mt. San Gorgonio Rm. 107

Hall

Vineyard Rm. 109

Palm Rm. 108

Men's Restroom | **West Lobby** | East Lobby | Women's Restroom

Room 105

E M H A

Promising Results and Strategies for Integrated Teaching of Math and CS in Compliance with Both Common Core Math and CS Standards

Panelists:

Dr. Harry Cheng, Professor & C-STEM Center Director, UC Davis

Dr. Kenneth Wagner, Assistant Superintendent of Educational Services, Redlands USD

Dr. Judy Fancher, Assistant Superintendent of Curriculum, Instruction, & Assessment, PreK-12, Hacienda La Puente USD

Kristen Sandler, Coordinator, Secondary Mathematics, Fontana USD

Description:

C-STEM provides K-12 students with 13 years of hands-on integrated math and computer science education in compliance with both Common Core Math and CS Standards. Join this panel session to learn the strategies to integrate programming and robotics into K-12 CS, STEAM, and CTE curriculum to close the math achievement gap with C-STEM.

Math scores in SBAC standard math test for 3rd grade students using C-STEM Program

Room 107

M H A B
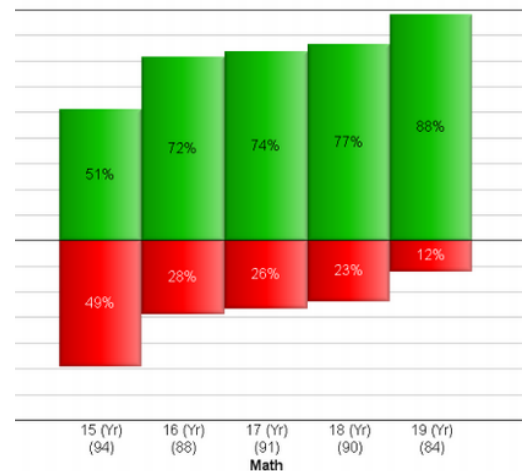
Integrating Robotics into AP Computer Science Principles

Facilitator:

Dr. Larry Lagerstrom, Chief Academic Officer, Barobo, Inc.

Description:

More and more high schools are seeking to add an AP Computer Science Principles (CSP) course to their curriculum. Come to this session to learn how robotics can be integrated into a CSP course using a variety of coding activities that are mapped to Code.org's CSP template course and can be included easily within any CSP course. Sensor-based robotics activities will also be demonstrated, which can be used to create a required CSP computational artifact to increase student engagement and learning.

Room 109

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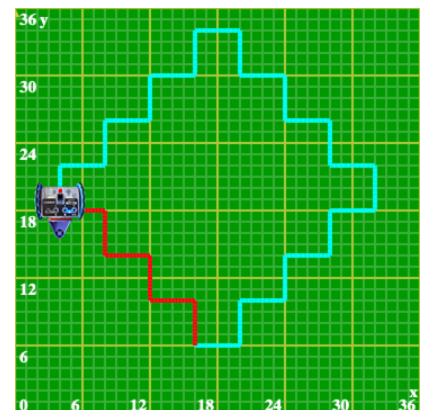
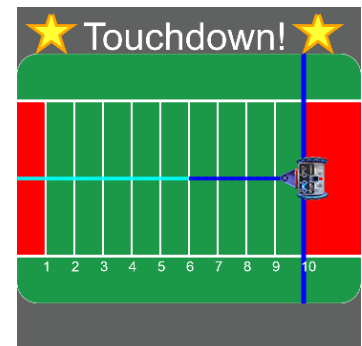# Integrating C-STEM Coding and Robotics into K-5 Math

Facilitator:
Daniel Ryan, Education Service Manager, UC Davis C-STEM Center

Description:
Participants will be guided through hands-on examples using coding and robotics to teach grades K-5 math. Participants will discover how coding and robotics directly supports students' math, critical thinking, and problem solving skills in a unique, engaging way. Try our hands-on approach to counting, numbers, adding, subtracting, and recognizing mathematical constructs. This session will also explore how C-STEM is currently being used in grades K-5 classes.

Room 104

(M) (A) (B)

Integrating C-STEM Coding and Robotics into Grades 6-8 Math

Facilitator:
Pamela Matea, Math Teacher, Southridge Tech Middle, Fontana USD

Description:
An experienced C-STEM teacher will guide participants through hands-on examples using coding and robotics to teach middle school math. Participants will discover how coding and robotics directly supports students' math, critical thinking, and problem solving skills in a unique, engaging way. This session will also explore how C-STEM is currently being used in middle school math classes.

Room 105

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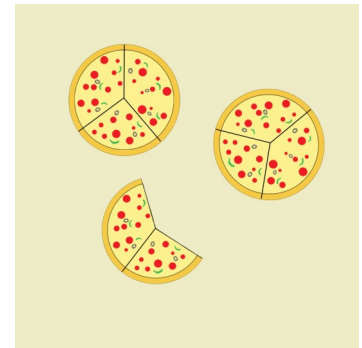
C-STEM for CTE, Computer Science, and NGSS-Aligned Science Education

Chairs:
Duane Wesley, Chair, Computer Science Department , San Diego Mesa College
Sonal Patel, Digital Learning & Innovation Coordinator, San Bernardino County Office of Education

Panelists:
Duane Wesley, Chair, Computer Science Department , San Diego Mesa College
Sonal Patel, Digital Learning & Innovation Coordinator, San Bernardino County Office of Education
Jeff Hescox, STEM Teacher, Communication and Technology School, Los Angeles USD
Julie Swan, Director, Secondary Education, Redlands USD

Description:
The Next Generation Science Standards (NGSS) changed the way science, technology and engineering intersect by providing a wealth of opportunities to engage students in science through computing and engineering. CTE, Computer Science, and Science teachers will discuss how the C-STEM program can be used to teach and reinforce standards and show examples incorporating physical computing in problem solving, data collection, and analysis with Linkbot and Arduino.

Room 104

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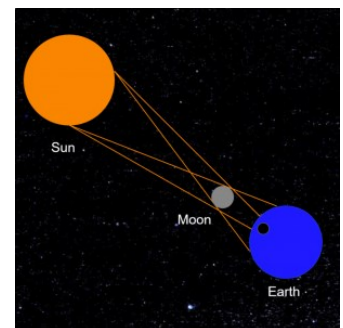
RoboBlockly for Engaging the Absolute Beginner in Computing, Robotics, and Math

Facilitators:

Deepika Srivastava, STEAM and Innovation Coordinator, Redlands USD
Varun Srivastava, Freshman, Redlands High (STUDENT)

Description:

RoboBlockly is a free web-based drag-and-drop coding environment for programming virtual and hardware Linkbots and Arduino. RoboBlockly is designed to guide absolute beginners through an introduction to solving real-world problems with math, coding, robotics, and logic. This hands-on session will explore the RoboBlockly platform as well as hundreds of pre-built activities aligned to Common Core, SC Standards, and NGSS.

Room 109

M H A B
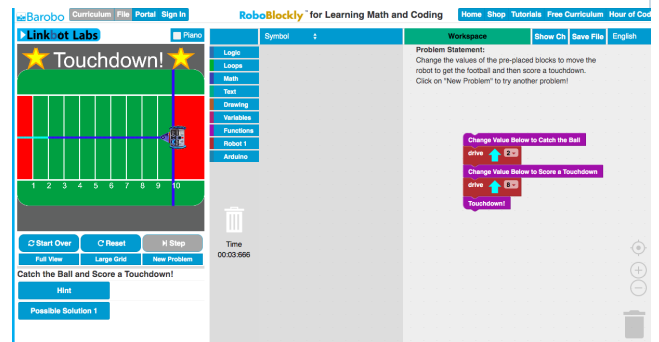
Integrating C-STEM Coding and Robotics into Integrated Math I, II, and III

Facilitator:

Daniel Ryan, Education Service Manager, UC Davis C-STEM Center

Description:

Experienced C-STEM staff will guide participants through hands-on examples using coding and robotics to teach Integrated Math I, II, & III (Algebra, Geometry, and Algebra II). Participants will discover how coding and robotics directly supports students' math, critical thinking, and problem solving skills in a unique, engaging way. This session will also explore how C-STEM is currently being used in Integrated Math I, II, & III (Algebra I, Geometry, and Algebra II) classes.

Room 105

E M H A

RoboPlay Competition and GIRL/GIRL+ Camps

Chairs:

Merry Kim, Associate Dean, CTE, Coastline Community College
Dr. Teresa W. Aldredge, Board President, Umoja Community Education Foundation

Panelists:

Merry Kim, Associate Dean, CTE, Coastline Community College
Dr. Teresa W. Aldredge, Board President, Umoja Community
    Education Foundation
Jesus Esquibel, Lecturer, Dept of Teacher Education, CSU Bakersfield
Brittney Beck, Assistant Professor, Dept of Teacher Education, CSU Bakersfield

Description:

The RoboPlay Competition is a math-based level playing field robotics competition for students in grades 5-12. It is designed for students to showcase their real-world math problem solving skills in a competitive environment. C-STEM Girls in Robotics Leadership (GIRL) and GIRL+ summer camps are focused on motivating middle and high school girls through peer mentoring to teach computing and STEM concepts through a fun and exciting robotics-based curriculum. Join this session to learn more about this robotics competition and how to promote diversity and inclusion.

Room 104

E M H A

Engaging Students Learning K-12 Math with Computing and Robotics: Open the Gate for STEM Careers

Chairs:
Dr. Judy Fancher, Assistant Superintendent of Curriculum, Instruction, & Assessment, Hacienda La Puente USD
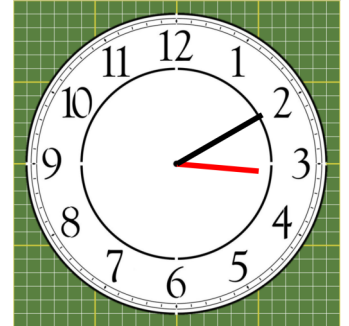Dr. Brittney Beck, Assistant Professor, Dept of Teacher Education, CSU Bakersfield

Panelists:
Allen Thoe, Math and CS Teacher, Citrus Valley High, Redlands USD
Samantha Higbee, Math Teacher, Orange Grove Middle, Hacienda La Puente USD
Marissa Blessum, Math Teacher, Cedarlane Academy, Hacienda La Puente USD

Description:
Hear from experienced C-STEM teachers how you can better engage your students in their math classes with C-STEM coding and robotics. Explore how students benefit from the hands-on creative problem solving nature of coding and robotics and how simple it can be to include in your classroom teaching. They will discuss how C-STEM A-G approved courses with C math credit has helped guide students through challenging math topics and past the algebra gatekeeper while simultaneously teaching programming and computational thinking.

Room 109

M H B

Sensor-Based Robotics

Facilitator:
Dr. Larry Lagerstrom, Chief Academic Officer, Barobo, Inc.

Description:
This hands-on session will provide the opportunity to combine sensors, breadboarding, and microcontrollers with Linkbots to build more dynamic and interesting robots. See first-hand how you can create line-following, obstacle avoiding, and light-sensing robots with easy-to-use robotic sensors. Learn how to take your students' education to the next level by integrating advanced robotics into Math, Computer Science, Engineering and Robotics courses, afterschool programs, and summer camps.

Room 105

E M H B
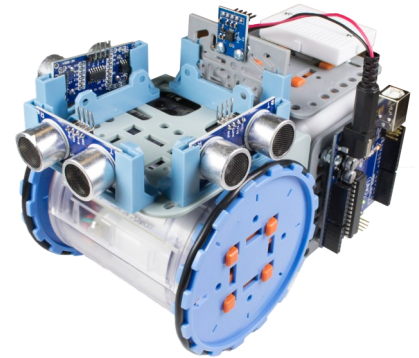
Full STEAM Ahead: Creating Art, Animations, Music, and a STEAM Makerspace in your School

Facilitator:
Daniel Ryan, Education Service Manager, UC Davis C-STEM Center

Description:
This session shows how the C-STEM program integrates Art into STEAM education by giving students the opportunity to explore their artistic and creative talents through activity resources for music, drawing and animating with coding, programming hardware robots to play melodies, learning math with a piano, and generating a gallery of graphics Also learn how your school can facilitate a hands-on STEAM Makerspace for your students to develop simple and advanced robotics systems to creatively solve problems. Explore how quickly and easily dynamic Linkbot systems can be assembled to accomplish various tasks and solve challenges in a C-STEM Makerspace with Linkbots, Arduino, Raspberry Pi, and Robotic Sensors.
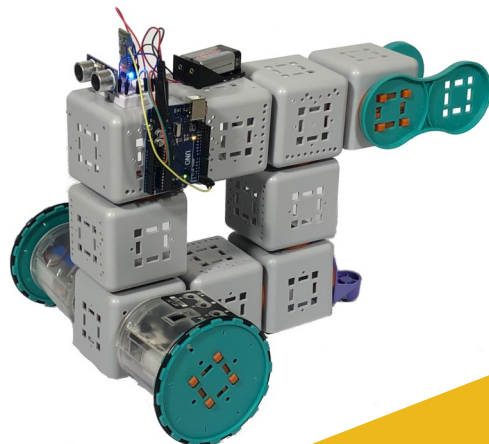
12

Create Your Own

Linkbot Masterpiece
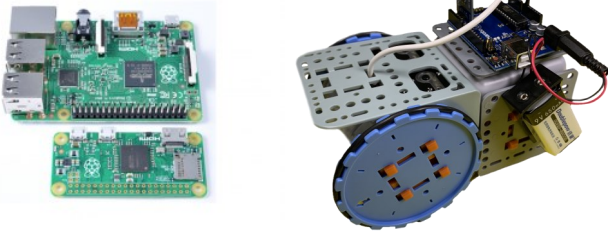
See Linkbots in action!

Ask C-STEM Students questions

Build and run your own robot creation

Explore Linkbot, Arduino, and
Raspberry Pi possibilities

Try your hand at block-based coding

Take advantage of the Expo and Makerspace hosted by students from Redlands USD to learn the basics or explore the creative possibilities of robotics, coding, and integrated math education.

Whether you missed a breakout session and need further explanation on a subject or want to experience exciting new projects, the Expo is the perfect place to learn from the C-STEM students and gain further hands-on experience. Visit during registration, coffee breaks, lunch, or in between breakout sessions!

Visit the Makerspace at the Expo to try building your own robot and Arduino projects. Our C-STEM students will be on hand to eagerly answer your questions and provide assistance .
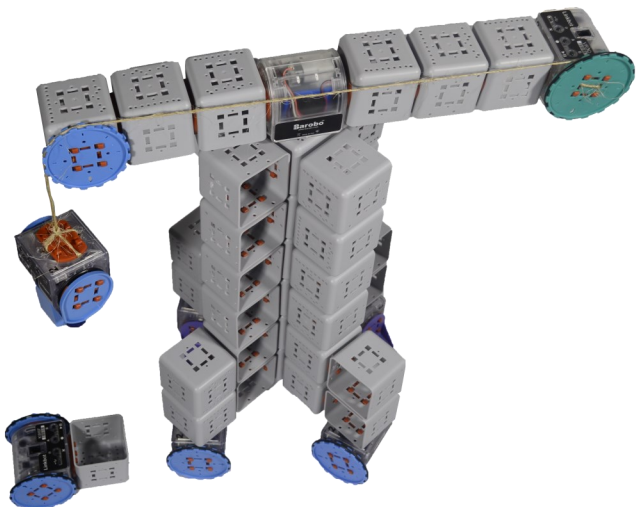
9:00am—4:00pm
Palm Rm. 108

Engagement is Key

for Lasting Student Success