

ART =  
OPPORTUNITY



**OUR MISSION AT CENTER ARTES AND ART=OPPORTUNITY** is to ensure that all children have access to learn in, with and through the arts. Our own research of Cal State San Marcos (CSUSM) college students identifies social equity factors that play into college preparedness and success. We recognize that there is significant social inequality in our society and understand there is much work to be done to create an equal playing field for all children. Our nonprofit organization works to create arts equity for students by educating teachers/future teachers, parents, and school administrators about the importance of arts education for all students. We do this by providing hands-on arts experiences and various resources to the public throughout the year, such as access to open source research that supports arts education, creative youth development as well as college and career pathways for youth engaged in the arts, literacy residencies, boot camps and workshops on arts integration, and more.



Visit [csusm.edu/artopp](https://csusm.edu/artopp) for access to our current research and upcoming events. Use our online toolkit to help spread the word about this important initiative. **BECAUSE THE ARTS MAKE A DIFFERENCE!**



## THE JOY OF ART

In 2024 Center ARTES and our ART=OPPORTUNITY campaign built upon existing programs, added new initiatives, and brought on additional faculty fellows. The work of our amazing STEAM ambassadors increased, thanks to the Coastal Community Foundation, Illumina, and the Dr. Suess Foundation.

With support from the Hewlett and Heller Foundations, and the Residency Lab at the California Department of Education, our first credential arts cohort (of many to come) was successfully launched. To say the least, it has been an exciting year for our students, our faculty, and the students in K-12 whom we serve.

In the pages that follow, you'll meet our new fellows and mentors and explore the work of our STEAM leaders. You will also be introduced to Harmony Hacks, a program aimed at high school and college young women and supported by the National Science Foundation.

This report highlights the joy and exhilaration of what can happen when arts take a center stage in learning. The arts also prove critical in providing spaces to our students for mindfulness and reflection. Late in 2024 and after the presidential election, many of our students from elementary school through our student teachers were fearful of what might unfold for them and their families. We provided art activities aimed to help our students feel safe and empowered. Our team fully embraces the power of the arts to support community, enable individuals to thrive, and to teach empathy.

I could not be prouder of our accomplishments in 2024. Gratitude to all our students, faculty, mentors, community partners, and funders! Forward! Adelante!

Merry Goldberg, Ed.D., Director of Center ARTES,  
California State University San Marcos

## OUR CENTER ARTES FELLOWS



**Dr. Kristin Moss**

*Center ARTES Faculty Fellow in  
Community Arts*

Dr. Moss champions art and community collaboration as tools for building inclusive, peaceful communities. Her research highlights public art's role in inspiring civic engagement. As a faculty fellow focusing on partnerships, she expanded connections with local museums, galleries, and creative businesses. In spring 2024, she co-presented with CSU East Bay colleagues Eric Engdahl and Lisa Edsall Giglio on developing the arts teaching workforce at the Residency Lab Symposium hosted at the Museum of Tolerance.



**Lucy HG Solomon**

*Center ARTES Faculty Fellow in  
STEAM Ingenuity*

Professor Lucy HG Solomon bridges art, science, and education to spark discovery at all levels. She launched the STEAM Ambassador program at CSUSM and collaborates with scientists and conservationists to weave storytelling into science, bringing STEAM to schools and communities. In 2024 she and Cesar Baio created a living art installation in Finland's boreal forest. Her collective exhibited at the Beall Center for Art + Technology at UCI, where the STEAM Ambassadors presented a workshop.



**Dr. Christiane Wood**

*Center ARTES Faculty Fellow in  
STEAM + Literacy*

Dr. Christiane Wood is leading innovative efforts to enhance early childhood literacy. Through the STEAM + Literacy Initiative, her work has impacted numerous classroom teachers and students, integrating maker education, the arts, literacy, and STEM to create transformative learning experiences. Dr. Wood guided the launch of the inaugural CREATE Residency cohort of 20 multiple-subject educators, equipping them to integrate the arts into classrooms and transform teaching practices.



**Cherie Hill**

*Center ARTES Faculty Fellow in  
Dance & Community*

Professor Cherie Hill creates art that explores human expression through the body in collaboration with nature, music, and visual imagery. As an equity advocate, her research, service, and teaching interests support equitable and inclusive environments. Professor Hill arranged for guest Hip Hop dance artists to teach in local schools and provide professional development to future educators. She was instrumental in video production for the arts teacher pathway.

## OUR CENTER ARTES FELLOWS



**Julie Goldstein**

*Center ARTES Faculty Fellow in  
Arts Education & Inspiration*

Professor Julie Goldstein, a woodcut printmaker, multidisciplinary artist, and educator, explores resilience, identity, and the human-nature connection. Her bold, evocative prints tell stories of strength and empowerment, while her teaching inspires students to develop their visual language and discover their artistic and educational voices. Professor Goldstein was central to the development of the multiple subject arts credential, expanding the pathway to becoming an arts teacher at CSUSM.



**Dr. Seth Shafer**

*Center ARTES Faculty Fellow in  
Computer Music & Technology*

Dr. Seth Shafer's work hybridizes technology, new media, and art/science to explore themes of ephemerality and multiplicity. His artistic practice embraces the extreme edge of performance, centering on real-time notation, interactive music, and algorithmic art. Dr. Shafer is a collaborator on Harmony Hacks, with faculty from Computer Science and Music. Harmony Hacks creates inclusive, beginner-friendly events for high school girls as they combine computer programming and music in problem solving.



**Cassiopeia Guthrie**

*Center ARTES Faculty Fellow in  
Interdisciplinary Innovation*

Cassiopeia Guthrie is committed to the imperative: inspiring courageous, creative, equity-minded, and empowered communities ready to change the world. A credentialed educator, professional journalist, and award-winning theatre critic, her instruction leverages interdisciplinary inquiry, arts integration, design thinking, and critical engagement to explore the intersections between pedagogy and social justice. Professor Guthrie is a vibrant contributor to STEAM.



**Matthew Armstrong**

*Center ARTES Faculty Fellow in  
Arts Integration and Education*

Matthew Armstrong is a musician, educator, and arts advocate dedicated to making the arts accessible and essential in every child's education. In the leadership team of the CREATE residency, he creates opportunities for student creativity, builds partnerships between schools and artists, and promotes equity in the arts. With San Diego Percussion Festival and the Cuban National Concert Band, he champions music as a force for cultural exchange, student empowerment, and community connection.

## SPREADING THE MESSAGE OF WHY



Launched in 2024, Harmony Hacks both a student-led organization at CSUSM, and a project funded by the National Science Foundation intended to broaden the participation of women in computing. Led by faculty from Computer Science and Music, the project creates inclusive, beginner-friendly experiences that combine coding and creativity. Harmony Hacks hosted a well-attended info session and a project-based event where high school girls, guided by college mentors, used programming to embed secret messages in music. More of these innovative workshops, designed to spark excitement and meet the need for supportive, welcoming spaces for women and underrepresented students in tech, are planned in the coming year. Harmony Hacks has already established it is more than a project and a club—it's a movement to inspire curiosity, build confidence, and foster community through mentorship and outreach.



NATIONAL  
CRYPTOLOGIC  
MUSEUM

In April 2024, the National Cryptologic Museum hosted Dr. Merryl Goldberg, Professor in the School of Arts at California State University San Marcos, for a captivating evening titled *A Conversation with Merryl Goldberg*. The event drew an engaged audience as Dr. Goldberg recounted her journey through Moscow in the 1980s, her tense encounters with the KGB, and the ingenious cipher system she created using coded music sheets. As a highlight of the evening, she performed cryptographic tunes live, demonstrating the clever integration of music and code. The event was a resounding success and a reminder of the relevance to the arts in all things.

**Art=Opportunity**  
October 12, 2024 · 🌐

We have an amazing opportunity coming up for anyone who is interested in becoming an elementary arts teacher! Join us for some fun activities, hear from other art teachers and to discover all the pathways to becoming an arts educator! #artseducation #csusm #teachercredential #education

The passage of Prop 28 in 2022 guarantees K-12 Arts Education in California Schools!

DISCOVER THE PATH TO  
Becoming an **ELEMENTARY ARTS Teacher**

**ART = OPPORTUNITY**  
PROFESSIONAL DEVELOPMENT EXPERIENCE



**California School Districts need ART TEACHERS!**

**Free** Saturday, November 9, 2024  
8:00 am - 1:00 pm  
Arts Building CSUSM

INCLUDES: Breakfast, parking, & cool swag!

## SOCIAL MEDIA

Our social media channels give us a platform to promote the mission of ART=OPPORTUNITY and various professional development opportunities and activities to encourage teachers, administrators and parents to become arts advocates. Our on-line community on Facebook and Instagram allows us to expand the message that art for all equals expanded opportunity for all. The ability to reach so many “Art Warriors” was key to the success of our workshop in November 2024.

Follow **ART=OPPORTUNITY** on Facebook and Instagram.

## WHY ART? TOOLKIT

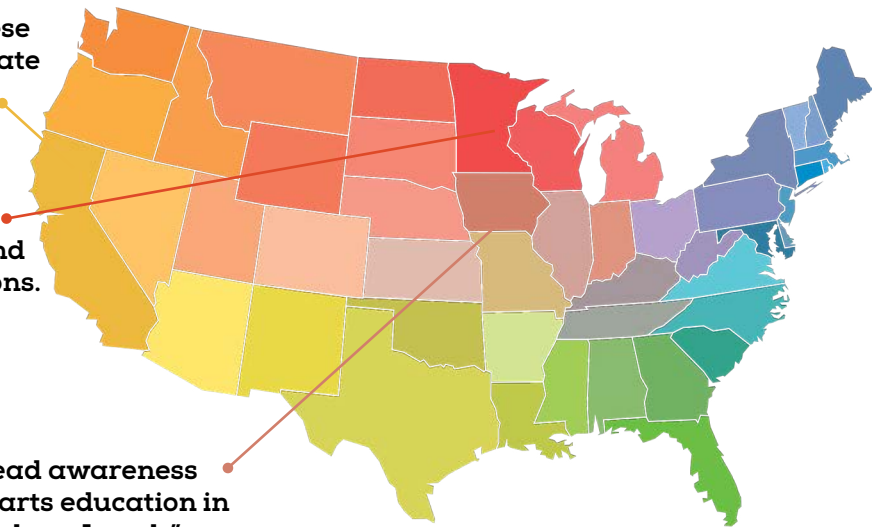
We continue to receive requests through our online portal for our research-based **WHY ART?** card packs, posters and other branded materials from arts organizations and schools nationwide. Quotes from our simple online survey confirm many students, educators, and administrators are joining our call to advocate for the arts!



“ I sit on a high school council and will use these cards to help demonstrate that a strong arts education supports the administrator’s goals.”

“ We are providing pro bono services to arts and humanities organizations. We will be sharing our “why and your cards capture some of those reasons beautifully.”

“ I love being able to spread awareness of the many benefits of arts education in the elementary school where I work.”



### ▶ HELP SPREAD THE MESSAGE!

**CLICK** to access our online toolkit which includes downloadable images, bookmarks, online banners, **WHY ART?** cards, and posters in English and Spanish.



# THE CREATE RESIDENCY: A BOLD STEP FORWARD IN ARTS EDUCATION



The passage of Prop 88 in 2022 guarantees K-12 Arts Education in California Schools!

DISCOVER THE PATH TO  
Becoming an **ELEMENTARY**  
**ARTS Teacher**

**ARTS OPPORTUNITY**

California School Districts **need ART TEACHERS!**

**Free** Saturday, November 9, 2024  
8:00 am - 1:00 pm  
Arts Building CSUSM

INCLUDES: Breakfast, parking, & cool swag!

REGISTER NOW:  
<http://bit.ly/3Ye9dSL>

This event will introduce you to the path to becoming an elementary arts teacher in the areas of dance, theater, music, visual and media art. Enjoy activities, hear from arts teachers, and discover the pathways to becoming an arts educator.

This opportunity was made possible by the generous support of the Clarence E. Heller Foundation and the Hewlett Foundation.

Every child deserves the opportunity to learn with and through the arts.

with transformative strategies for integrating Visual and Performing Arts (VAPA) into their teaching. The day was packed with engaging activities, expert insights, and collaborative opportunities, leaving participants energized and ready to bring the arts to life in their classrooms.

The day began with a screening of **The Last Repair Shop**, a thought-provoking video connecting the arts to the transformative work of teaching. During the viewing, Dr. Christiane Wood led residents in sketchnoting, encouraging them to capture their reflections and insights visually as they explored the themes of the video.

Following this, Julie Goldstein, Center ARTES Faculty Fellow in Arts Education & Inspiration,

In the Fall, CREATE Residents, university supervisors, classroom teachers, and arts liaisons gathered for their first Professional Development (PD) Day.

This event was designed to inspire and equip participants



The William and Flora Hewlett Foundation, along with the Clarence E. Heller Foundation, has provided substantial support to Center ARTES to build pathways for future arts teachers.

facilitated the WHY ART? Cards activity where the residents explored how visual prompts can inspire creativity and reflection in students. The activity demonstrated how our WHY ART? cards could be used to foster critical thinking, personal expression, and meaningful discussions in the



Continued on next page



classroom. Residents engaged in hands-on exploration, discovering how these simple tools can transform student learning experiences and deepen engagement.

Matt Armstrong, CREATE Program Manager, VAPA Coordinator for SMUSD and Center ARTES Faculty Fellow, led an interactive arts integration activity titled *Bird on a Wire*. This session showcased how to use visual and performing arts to enhance curriculum content. Residents participated in the

creative process, exploring how the activity could be adapted across grade levels and content areas to spark student curiosity and innovation.

Later in the morning, Cherie Hill, Center ARTES Faculty Fellow in Dance & Community, introduced residents to using dance for engagement and creativity in teaching. The session was further enriched by a guest appearance from Hip Hop dancer Quentin Robinson who brought energy and inspiration while showcasing how movement can foster student connection and creativity.

After lunch, residents traveled to The New Children’s Museum, where they explored *Breathing Room*, a sensory-friendly art installation by Michelle Montjoy. This immersive session provided a model for creating calming, inclusive spaces that support student expression and engagement, inspiring residents to think critically about adapting arts-integrated approaches in their classrooms. Throughout the day, resources and tools were shared. These resources complemented the day’s activities, ensuring residents left with practical strategies and fresh ideas to integrate arts into their teaching practices.

The success of this PD Day was made possible through the leadership of CREATE Residency Coordinators—Dr. Christiane Wood, Mr. Matthew Armstrong, Ms. Julie Goldstein, and contributions from Merryl Goldberg, Lucy HG Solomon, Kristin Moss, Cherie Hill, and Michele Montjoy. Their expertise and dedication provided residents with an enriching and inspiring professional development experience.

The CREATE Residency fosters a vibrant community of educators committed to inspiring their students and transforming classrooms through the power of the arts.



## CENTER ARTES WELCOMES COMMUNITY MENTORS FOR CREATE RESIDENTS

Local teaching artists were invited to provide support for the 2024/25 CREATE residents' professional development and establish connections to local arts institutions and venues. Michelle Montjoy (above left) makes art that encompasses installation, sculpture, embroidery, and social practice in and around her home community in Oceanside. Nhu Nguyen (above right) is an artist, performer, and maker with interests in dance, photography, and wearable art and a Lecturer in the Dance Studies program at CSUSM."

“Aspiring teachers benefit so much from developing their own creative practices, and they pass that on to their students in the classroom. The hands-on, multisensory nature of art making fosters engagement, exploration, and provides opportunities for collaboration and growth. Nurturing your own creativity is excellent preparation for becoming an educator.”

– Dr. Kristin Moss

These professional artists have been exhibiting, performing, and teaching in North County and San Diego extensively and provided a wealth of knowledge and creative inspiration for CREATE Residents about using art in the classroom. They each offered workshops during the CREATE residents' professional development events, with activities ranging from community weaving, to group dance/movement performances, to a unique installation of self-portraits.

Center ARTES thanks the Clarence E. Heller Charitable Foundation for funding the artist mentorship program for future arts teachers!”

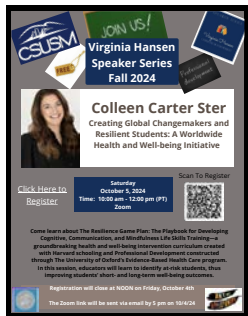


Michelle Montjoy's art installation *Breathing Room* at the New Children's Museum provided a venue for CREATE Residents to experience an inviting sensory space as part of their professional development.

# 2024 SPEAKER SERIES, SPONSORED BY ART=OPPORTUNITY



The CSUSM Virginia Hansen Speaker Series offers a rich professional development session lineup that emphasizes innovative educational practices and strategies for enhancing classroom management, engagement, and inclusivity. This initiative seeks to empower educators with diverse tools and methodologies for fostering a supportive and dynamic learning environment. Below is a summary of the series' offerings, emphasizing educational strategies and classroom innovation beyond arts integration.



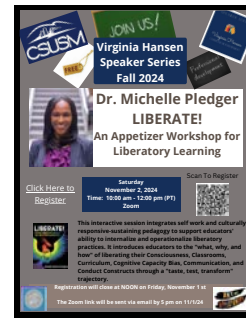
## Colleen Carter Ster – Creating Global Changemakers and Resilient Students: A Worldwide Health and Well-being Initiative

Colleen Carter Ster introduced *The Resilience Game Plan*, a groundbreaking curriculum developed through Harvard and Oxford's evidence-based health care programs. Attendees explored strategies to cultivate students' cognitive, communication, and mindfulness skills, equipping them with lifelong resilience tools. The session underscored the importance of well-being interventions in fostering global changemakers.



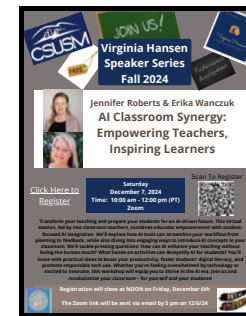
## Alma Sanchez – High-Engagement Academic Language Acquisition and Literacy Strategies

Alma Sanchez, School of Education Distinguished Teacher in Residence, led a session on promoting language skills and academic success for multilingual learners. Through an asset-based, student-centered approach, participants engaged with BeGLAD strategies to enhance cross-cultural understanding and literacy. The workshop emphasized leveraging students' funds of knowledge to create inclusive and effective learning experiences.



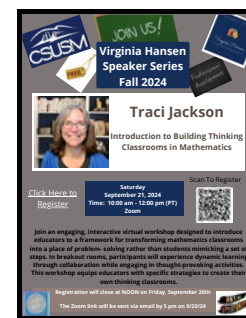
## Dr. Michelle Pledger – LIBERATE! An Appetizer Workshop for Liberatory Learning

Dr. Michelle Pledger's interactive session guided educators through culturally responsive pedagogy and liberatory learning practices. Participants explored strategies for transforming their consciousness, curriculum, and classroom dynamics through a reflective "taste, test, transform" model. The workshop provided actionable insights into fostering equitable and empowering learning spaces.



## Jennifer Roberts & Erika Wanczuk – AI Classroom Synergy: Empowering Teachers, Inspiring Learners

Jennifer Roberts and Erika Wanczuk explored AI integration in education, demonstrating how technology can enhance teaching while maintaining a human-centered approach. Educators discovered ways to streamline lesson planning, provide AI-driven feedback, and introduce students to responsible AI use. The session emphasized hands-on activities to build digital literacy and prepare students for an AI-driven future.



## Traci Jackson – Introduction to Building Thinking Classrooms in Mathematics

Traci Jackson introduced a dynamic framework for transforming math instruction into an engaging, problem-solving experience. Educators participated in interactive breakout sessions to explore collaborative, student-driven learning strategies. The workshop provided practical tools to shift away from rote learning and foster deep mathematical thinking in the classroom.

Through these workshops, the Virginia Hansen Speaker Series continues to empower educators with innovative methods to inspire and support their students in meaningful ways.

# STEAM + LITERACY INCLUSIVE MAKERSPACE (SLIM) PROJECT

Through its interdisciplinary and inclusive approach, SLIM inspires young learners to think critically, act compassionately, and create innovatively, equipping them to thrive as global citizens in a rapidly changing world.



The STEAM+Literacy Inclusive Makerspace (SLIM) project is an innovative initiative led by Dr. Christiane Wood, Center ARTES Faculty Fellow in STEAM + Literacy, with the generous support of the **Dr. Seuss Foundation**. This collaborative project engages approximately 25

TK-2nd grade teachers to design and implement hands-on curricula integrating STEAM, literacy, and design thinking in classroom makerspace environments. The SLIM project aims to transform literacy and STEAM education by empowering teachers with the tools and strategies to create engaging and inclusive learning experiences, and SLIM prepares young learners to thrive in a complex and interconnected world.

## Goals of the SLIM Project

- **Enhance Literacy Development:** Through innovative makerspace activities, young learners build foundational reading and writing skills during their formative years.
- **Integrate Arts and STEAM:** By weaving artistic expression into STEAM education, SLIM fosters creativity, collaboration, and a multidisciplinary approach to problem-solving.
- **Promote Global Competence:** The curriculum aligns with Global California 2030 and the UN Sustainable Development Goals (SDGs), equipping students with the skills to engage in global citizenship.
- **Support Teacher Development:** SLIM collaborates with educators to provide tools and strategies for meaningful, impactful teaching practices in early childhood literacy education.

## Innovative Curricula and Projects

### ■ Kindergarten: Purposeful Play, Social-Emotional Learning, and Artistic Expression

Kindergarteners engage in purposeful play designed to foster creativity, responsibility, perseverance, and social-emotional growth. Arts activities, such as storytelling, drawing, and movement, allow students to explore emotions and diverse perspectives.

### ■ First Grade: Circuits, Literacy, and Creative Innovation

First-grade students explore electricity and circuits through hands-on activities like squishy circuits, blending language arts and science. Arts integration adds a creative dimension as students design visual representations of circuit-based solutions, fostering innovation and problem-solving.

### ■ Second Grade: Pollination, Makerspace Design Thinking, and Environmental Art

Second graders investigate the critical role of pollination in sustaining ecosystems through the design thinking process. Students research pollinators, such as bees, butterflies, and birds, and use this knowledge to design and create pollinator models. This hands-on project promotes environmental stewardship and sustainable agricultural practices, fostering scientific curiosity and creativity.

## Emphasizing Global Competence and Arts Integration

The SLIM project integrates arts into all STEAM activities to enhance creativity, engagement, and meaning-making. Students develop a multidisciplinary approach to learning and self-expression through storytelling, visual arts, or digital media. Coupled with global competence, the curriculum prepares students to address real-world challenges, understand diverse perspectives, and connect with UN Sustainable Development Goals.



# WHAT DOES IT MEAN TO BE A STEAM AMBASSADOR?

– OUR 2024 STEAM AMBASSADORS



**Emma R. Avila** is a Liberal Studies major with an area of focus in Art. She plans on

becoming an elementary art or kindergarten teacher. Emma strives to express her love for the arts to younger students so that they are able to expand their creativity throughout their life.

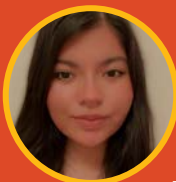
“As STEAM Ambassadors, our aim is to enlighten younger students about the interconnectedness of various subjects they encounter in their education, including literature, science, mathematics, and art.”

**Derrick Nguyen** is a Communications major who also has a background in fashion design. He hopes to eventually go into the fashion industry after graduation.

“As a new STEAM ambassador, I have been getting more opportunities to spread the word about art and science to the public. I am so excited to be a part of such an amazing and creative team!”



**Jasmin Perez Arango** is currently a student at CSUSM majoring in Liberal Studies with an area of focus in Bilingual Spanish. She plans to become an elementary teacher.



“Being a STEAM ambassador for me means having the opportunity to gain experience with project planning, creativity, teamwork, and being able to go out of my comfort zone. This has helped me find ways to work with science and art to make learning fun and interesting for young children!”

**Angelina Parra** is majoring in Biotechnology with minors in Visual Arts and Biological Sciences. She aspires to become a veterinarian and establish a rehabilitation center for neglected animals. Serving as a STEAM ambassador has provided her with valuable opportunities to teach children and deepen her knowledge of science and art.



“Being an ambassador means having the ability to share my knowledge with youth. It’s fascinating to see how excited they get when they discover something new. There’s nothing quite like witnessing children’s enthusiasm as they experience something for the first time. I find this to be beautiful, as it can create new opportunities and ignite curiosity in children. My love for STEM grew from a similar experience, where I became captivated by how the body works and how complex it is, which fueled my desire to learn more about it.”

**Zeena Najmi** studies Economics with a minor in sustainability and hopes to bring these skills to a career oriented to environmental Sustainability. Her work as a STEAM Ambassador draws on her experiences in different disciplines, as she helps to plant seeds of curiosity in school children.



“For me, being a STEAM ambassador means being able to assist in building our future. By creating lesson plans mixing art and science, I hope to leave a memorable mark on children’s growth.”

**Mie Basobas** is an Applied Physics major with a focus on Astrophysics. She hopes to become a researcher in the field and is also interested in art and wants to find a way for both to coexist in her future work.



“To me, being a STEAM ambassador means finding ways for all students to learn in their own unique style and encouraging that. By combining art and science, students learn to apply creative thinking to subjects outside of art, and students who are more visual or hands-on learners are able to learn in a way that best suits them.”



**Melanie Wollrabe**, the STEAM Ambassador coordinator, is majoring in Liberal Studies with a focus in Art. She hopes to become an elementary school teacher after college. Being a STEAM Ambassador has been a great opportunity for her to gain experience with project planning and working with kids.

“To me, being a STEAM Ambassador means inspiring young students to create with both art and science, and even storytelling! I found that involving art and storytelling with science has helped to make lessons both more fun and easier to understand. As a STEAM Ambassador, I can help to bring creativity to science!”

# STEAM AMBASSADORS - 2024

**Buzzing with Curiosity**  
STEAM KIT FOR CLASSROOMS  
**YOU CAN BE AN OBSERVER OF NATURE!**

What is in your kit? magnifying glasses, field guide, paper leaf cutouts, stick-on eyes, twist ties

Additional supplies to have on hand: pencils or pens, (for field guide notes), drawing utensils (for insect embellishments), scissors or glue if needed (but not required)

Classroom needs: outdoor space for exploring the natural world (if possible), bins or table space for the distribution of materials, area for hands-on making activity

**A KIT FOR DISCOVERING AND BUILDING INSECTS**

**Part 1. The Book**  
Read *Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner*, a book that ponders how insects see and process the world.  
You will need: the book (*Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner*)  
Ideas for further research: Discuss how insects see the world and search for online sources that simulate insect vision. For insect identification and research, visit [bugguide.net](http://bugguide.net).

**Part 2. Bug Walk**  
Take a Bug Walk to seek out insects. Insects may be observed on the ground or in the air. Take note of any patterns you may observe. Pause to write down your observations or to draw what you see.  
You will need these items from the kit: magnifying glass, field guide, your own pencil or pen  
Lesson ideas:  
• Ahead of the walk, consider asking students to select one of the insects observed in the text and to attempt to look at the world from that insect's point of view.  
• Consider collecting fallen leaves on the walk to examine.

What different kinds of insects exist in the world?  
What insects do you see around you?

CSUSM STEAM AMBASSADORS

The STEAM Ambassador program combines not only art and science, but also literacy and storytelling! By presenting hands-on learning in K-12 classrooms and workshops at public events for families and experimenters of all ages, STEAM Ambassadors introduce art, science and literacy concepts through hands-on activities.

With support from **Illumina Foundation** and **Coastal Community Foundation**, Center ARTES expanded the STEAM Ambassadors' reach, providing hands-on interdisciplinary learning at a range of local school sites as well as workshops for the community. In collaboration with students in the teacher credentialing program, STEAM Ambassadors developed curriculum for grades school classrooms focused on the exploration of genetics and what makes kids individuals, including pairing scientific activities like DNA extraction with abstract dot art (see next page). And at a North County festival celebrating Black history, STEAM Ambassadors presented

a lesson on the first Black entomologist, paired with field activities and the creative design of personalized insects and gave workshops on plant and fungi genetics, with an emphasis on the tree of life and the development of symbiotic relationships. STEAM Ambassadors also participated in CSUSM's annual STEM Saturday festival, collaborating with the STEM Ambassadors on a booth that shared the science of light and color with visiting area families. STEAM + Literacy programming brought podcasting to North County and Temecula-area schools, with school children becoming the storytellers of DNA science.

They also participated in CSUSM's annual STEM Saturday festival, collaborating with the STEM Ambassadors on a booth that shared the science of light and color with visiting area families. STEAM + Literacy programming brought podcasting to North County and Temecula-area schools, with school children becoming the storytellers of DNA science.

**In 2024, STEAM Ambassadors reached 70 elementary classrooms or an estimated 2100 students! The program serves students from Title I schools, bringing hands-on STEAM + Literacy and DNA science to school children across North San Diego and Temecula Counties.**



## FUTURE TEACHERS TALK ABOUT STEAM:

“After doing the STEAM + Literacy lesson plan I realized that there are so many ways we can incorporate STEAM into the classroom. In my future classroom I am going to try my best to incorporate STEAM into my lessons.”

“I was inspired by this experience. It showed me that it is possible to combine science with literacy. I will definitely be using this lesson plan in my teaching placement.”

“I think this experience was not only very professional but a really fun way to collaborate and work together to create a literacy lesson integrated with STEAM.”

“I think using STEAM in literacy is a great way to integrate science, technology, engineering, arts, and math.”



## ILLUMINA WORKED WITH CSUSM TO ASSEMBLE STRAWBERRY DNA KITS



Illumina employees teamed up with STEAM Ambassadors to create the STEAM program’s DIY DNA extraction kits. Manuel Martinez from Illumina visited CSUSM to discuss genomics with a cohort of future teachers and the STEAM Ambassadors, adding depth and a greater scientific context to their lesson planning. This was a boon to the teachers in training, and to their lessons.

The scientific activity threads easily into storytelling and individualized artmaking. Our goal was to get kids thinking on multiple levels—about DNA but also conceptually about identity, about themselves and their own genetic makeups. A culminating exhibition of the students’ DNA art was held at Oak Hill Community Montessori Charter School in Escondido in the Spring.

***The STEAM Ambassadors thank Illumina Foundation and Coastal Community Foundation for being instrumental funders for the development and delivery of robust STEAM curriculum to area youth!***

## IN THE NEWS



### STEAM Ambassadors Give Schoolkids an Extended DNA Day

May 1, 2024

Share Post Liko 0

By Brian Hiro



*Students from Community Charter Montessori Oak Hill in Escondido watch as a STEAM ambassador from CSUSM presents a lesson about DNA. Photo by Lucy HG Solomon*

April 25 was DNA Day, when the world commemorates the date in 1953 when scientists including James Watson and Francis Crick published papers in the journal Nature on one of the building blocks of life.

The day is celebrated annually by biologists, science teachers and anyone who’s interested in genetics. This year, the occasion has been made more memorable at elementary schools across the region thanks to a group of students at Cal State San Marcos.

About two weeks before DNA Day, more than two dozen students gathered in a classroom on the fourth floor of Academic Hall for the culmination of months of work to prepare a creative and thought-provoking lesson on DNA for local K-6 classrooms. Six STEAM ambassadors – arts and liberal studies majors who also have a passion for STEM disciplines – presented the kits they have been compiling to a class, taught by Ingrid Flores, of pre-service teachers pursuing their multiple-subject credential.

**CLICK** to read the full article.

# STRAWBERRY DNA + ART + LITERACY IN CLASSROOMS

The STEAM lesson on the unique signature of DNA pairs with the creation of individualized abstract art: each is unique! This hands-on exploration of DNA and abstract art begins with the book, *The Smallest Spot of a Dot: The Little Ways We're Different, The Big Ways We're the Same*, and culminates in a lesson on podcasting the story of DNA—created by teachers for teachers. Pairing DNA extraction with art is not simple, but the double lesson sure is fun! We invited future and current teachers to build off the genomics-based activity—extracting strawberry DNA—with a paired book about individuality and an art activity that engages kids in hands-on making that results in individualized dot art (a lot like DNA!).



*Studying the Smallest Spots*  
STEAM KIT FOR CLASSROOMS  
Every dot in you is unique!

**PART 1—THE BOOK**

This lesson is paired with “The Smallest Spot of a Dot,” a fun book that explores the ways we are different.  
\*Students may enjoy learning from the author!  
Search “Nightline Linsey Davis” for a video interview.

**PART 2—ART WITH MARBLES!**

You will need:

- 1 marble per group
- 1 paper per student
- 1 small container per group (for paint)
- 1 large container per group (for activity)

This activity uses washable tempera paint and rubbing alcohol. Use caution and share safe handling rules for your classroom.

1. Add splash of black paint to the small container
2. Roll marble in the small paint container until coated
3. Place sheet of paper into the large container
4. Add the marble and roll it around to paint the paper
5. Set the paper aside to dry

developed by the  
CSUSM  
STEAM  
AMBASSADORS



## STEAM AMBASSADORS ON DNA EXTRACTION AND ART:

“Creativity brings a visual element that can help better understand the subjects conceptually.”

“For some people who aren’t that interested in science, maybe that’s the entry point- the hands-on element. For teachers it’s a good way to have a balance between the classes, so students are doing something academic that’s also a break from only reading and writing.”

“Combining art and DNA was our most advanced project, and I was worried about how this would translate to the classroom with younger kids. We developed the marble art activity through trial and error, and this helped tie it together for the students.”

“I’ve always wanted to integrate art with science. With DNA and art, the combination is a way for people to experience both in different ways. Science is fun, and art is fun, and two things that are fun go together!”

## CENTER ARTES PROJECTS AND PARTNERS

With a team of vibrant community arts and education advisors, Dr. Merryl Goldberg founded Center ARTES in 2003. Thanks to generous funding from the Stuart Foundation in 2018, California State University San Marcos (CSUSM) launched a San Diego County-wide campaign focused on providing access for all children to a better education by improving literacy in and through the arts. Center ARTES has also received funding from the Panta Rhea Foundation, William and Flora Hewlett Foundation, Clarence E. Heller Foundation, Illumina Foundation, Dr Seuss Foundation, and Coast Community Foundation.

With ART=OPPORTUNITY, Center ARTES has established a research-based collective impact model with its home base at California State University San Marcos, engaging faculty, students and staff in multiple colleges. Through ever-building partnerships, including with the County Office of Education, school districts, arts non-profits and the community, we seek to ensure that each and every child has the opportunities that arts bring to successful careers and lives. Our work is also used statewide through organizations such as CREATE CA, California Alliance for Arts Education, and the California Arts Council.

For more information, research and downloads, please visit: [csusm.edu/artopp](https://csusm.edu/artopp)



### ABOUT CALIFORNIA STATE UNIVERSITY SAN MARCOS (CSUSM)

Founded in 1989, California State University San Marcos is a forward-focused institution, dedicated to preparing future leaders, building vibrant communities and solving critical issues.

The University enrolls over 17,000 students. With approximately 2,000 employees, the institution is a Great College to Work For® (*The Chronicle of Higher Education*). As a recipient of the annual HEED Award since 2014 – a national honor recognizing U.S. colleges and universities that demonstrate an outstanding commitment to diversity and inclusion – CSUSM is committed to creating a diverse and inclusive environment.

Center ARTES has long recognized access to the arts as a key element in future success for youth. Center ARTES' goals for accessible arts education align with CSUSM's commitment to our students. In 2022 CSUSM was recognized as the nation's leader in social mobility, ranking No. 1 out of more than 1,400 schools in CollegeNET's Social Mobility Index. To learn more about how the university empowers students with genuine advances in their education, please visit [bit.ly/3fzw5zq](https://bit.ly/3fzw5zq)

### WE ARE GRATEFUL FOR OUR PARTNERS



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