



# STEMCONNECTOR K-12 INNOVATION LAB BRIEF

Building Tomorrow's STEM Workforce:  
**Collaborative Approaches to K-12 STEM  
Education and Workforce Development**

**May 2023**, Hosted by  
**Da Vinci Schools**

# Overview

STEMconnector and Da Vinci Schools hosted the K-12 Innovation Lab May 10-11, 2023, in Los Angeles, California, to promote synergy between STEM learning and career development. The event emphasized the role of employers in making student learning relevant to STEM careers and unveiled several opportunities for scalability. This workshop served as a platform for K-12 stakeholders (industry, non-profit, higher education) to showcase how they're facilitating career-centric learning in classrooms, highlight potential areas for expansion, and build partnerships. Participants shared and learned about effective practices promoting career-focused learning in a collaborative environment.

It became evident during the workshop that the shortfall in STEM talent is significantly linked to disparities in K-12 education. As students gain foundational skills and mindsets during primary and secondary education, these become instrumental in their future educational pursuits and career paths. One primary challenge tackled during the lab was navigating the immense size and complexity of the K-12 system, especially when it comes to implementing reforms. The lab shed light on various facets of the K-12 landscape that present opportunities for engagement from employers. This year, topics included "Building Effective Collaborations to Advance STEM Outcomes", "Developing Skills and Competencies for STEM Workforce Success", and "Igniting College and Workforce Readiness through STEM Career Awareness".



# Site Visits

## NORTHROP GRUMMAN

Attendees at our K-12 Innovation Lab site visit embarked on an exciting tour of the historic Space Park campus in Redondo Beach, California, the prestigious hub of Northrop Grumman Aerospace Systems. Attendees toured the Northrop Grumman Museum and witnessed the awe-inspiring manufacturing facilities firsthand, providing them with a comprehensive understanding of Northrop Grumman's pivotal role in aviation and aerospace. Attendees learned about over 50 years of spacecraft design evolution, imparting invaluable insights about our planet and the wider solar system.

## SoFi Stadium

Our K-12 Innovation Lab attendees' exploration of SoFi Stadium, the home to the Los Angeles Rams and Chargers, provided eye-opening insights into the dynamic worlds of sports, technology, engineering, history, and culture. Attendees ventured into behind-the-scenes areas such as the media room, locker rooms and the player tunnel, gaining first-hand experience of the stadium's innovative design and its impact on sports. Additionally, the Kinsey African American Art & History Collection exhibit connected attendees to a profound narrative of African American resilience from the 16th century to the present day. Hosting events like Super Bowl LVI and the upcoming 2028 Olympic Games, SoFi Stadium exemplifies the intersection of sports, technology, engineering, and global culture – underscoring the significance of STEM, history, and innovation in shaping modern sports and entertainment landscapes.





## Innovation Lab Agenda

Thursday, May 11

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9:15am  | <b>Welcome</b> <ul style="list-style-type: none"> <li>Dr. Jo Webber, CEO, STEMconnector</li> <li>Matthew Wunder, CEO, Da Vinci Schools</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 9:40am  | <b>Overview &amp; Introductions</b> <ul style="list-style-type: none"> <li>Ted Wells and Amy Etten, Vice President, Client Engagement, STEMconnector</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10:00am | <b>Presentation</b> <ul style="list-style-type: none"> <li>Crissel Rodriguez, Director of Real-World Learning, Da Vinci Schools</li> <li>Michelle Rainey, Executive Director, Da Vinci Connect TK-College</li> </ul>                                                                                                                                                                                                                                                                                                                                                                     |
| 10:20am | <b>Break</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 10:40am | <b>Panel: Igniting College and Workforce Readiness through STEM Career Awareness</b> <ul style="list-style-type: none"> <li>Drew Glassford, Chief Executive Officer, Boys and Girls Clubs of Dundee</li> <li>Doug Henderson, Director-STEAM, Val Verde Unified School District</li> <li>Deborah K. Kariuki, Director/Faculty - Computer Science Education, University of Maryland Baltimore County (UMBC)</li> <li>Rob Lasalvia, Partnership Manager, Office of STEM Engagement, NASA</li> <li>Amy Etten, Vice President, Client Engagement, STEMconnector (<i>moderator</i>)</li> </ul> |
| 11:25am | <b>Facilitated Table Discussion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 11:45am | <b>Presentation</b> <ul style="list-style-type: none"> <li>Ron Ottinger, Executive Director, STEM Next Opportunity Fund</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 12:05pm | <b>Lunch</b><br><b>Presentation</b> <ul style="list-style-type: none"> <li>Debra Sterling, Founder and CEO, GoldieBlox</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 12:45pm | <b>Panel: Developing Skills and Competencies for STEM Workforce Success</b> <ul style="list-style-type: none"> <li>Susan Patterson, Director, Career &amp; Technical Education, Arlington ISD</li> <li>Lynn Schroetter, High School STEM Intern Program Manager, Abbott</li> <li>Cecilia Retelle Zywicki, CEO, Transeo</li> <li>Angela Consani, CEO and Founder, Bioscience Core Skills Institute</li> <li>Renee Aaron, Partnership Specialist, STEMconnector (<i>moderator</i>)</li> </ul>                                                                                              |
| 1:25pm  | <b>Facilitated Table Discussion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1:45pm  | <b>Panel: Building Effective Collaborations to Advance STEM Outcomes</b> <ul style="list-style-type: none"> <li>Adam Galia, Government &amp; Community Relations Specialist, Boeing</li> <li>Crystal Lovelady, Workforce Development Advisor, Shell</li> <li>Karin Wu, Chief of Staff, Growth Strategy, Think Together</li> <li>Dr. Mike Karlin, Assistant Professor, Liberal Studies / STEM, California State University, Dominguez Hills</li> <li>Alex Servello, Director, Corporate Social Responsibility, Verizon (<i>moderator</i>)</li> </ul>                                      |
| 2:30pm  | <b>Facilitated Table Discussion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2:45pm  | <b>Report out and Conclusion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

# Speaker Summaries

## [Da Vinci Schools](#) - Transforming Education

Da Vinci Schools are celebrated for their distinctive approach to project-oriented, practical education. They bridge the gap between K-12, higher education, and professional paths, connecting students with industry partners. Their Director of Real-World Learning, Crissle Rodriguez, highlighted the emphasis they place on working closely with students who are influenced by different systems. She underscored the importance of early interventions to shatter glass ceilings within educational environments, rather than waiting until students join the workforce, to address the significant challenges ahead.

At Da Vinci, students are being prepared for life, career, and college simultaneously. The curriculum, based on a practical, project-oriented framework, is developed through input from partnerships with higher education and industry. This approach ensures that students will have a broad spectrum of options after graduation. Da Vinci Connect's Executive Director, Michelle Rainey, further emphasized this approach, underlining the need to recognize individual strengths and areas of improvement. She encouraged the normalization of non-linear pathways to success, signifying that each person has unique talents as well as areas to develop.

## [STEM Next Opportunity Fund](#) - Increasing Equity and Opportunity in STEM

STEM Next is a leading nonprofit organization operating nationally, with a mission to expand STEM learning in after-school and summer programs. It seeks to build strong partnerships to extend STEM opportunities beyond the classroom, fostering a sense of belonging in every child. It aims to arm them with the skills and support required to navigate future challenges. Their programs have brought about significant shifts in STEM learning for millions of youths and educators by implementing strategies that are proven through research.

During his presentation, Ron Ottinger, the Executive Director of STEM Next Opportunity Fund, emphasized the organization's shift from supporting individual programs to investing in broader, more comprehensive systems-level work. He stressed the importance of fostering ecosystems and establishing infrastructures that would ensure the continuity and impact of their efforts rather than pursuing isolated initiatives. This approach demonstrates the organization's unwavering commitment to creating enduring and meaningful change in the field.

## [GoldieBlox](#)

GoldieBlox, founded by Debra Sterling, has a mission to introduce girls, as well as their parents, to STEM at an early age. By transforming these traditionally intimidating fields into enjoyable and inspiring experiences, GoldieBlox aims to build self-confidence and shatter long-standing stereotypes. They accomplish this through engaging shows, educational toys, and creative campaigns that celebrate diverse female STEM role models. The company also includes boys in their journey to level the playing field as children grow. Their core message is that STEM is not only cool but essential for future careers, many of which do not yet exist. Sterling's original inspiration for GoldieBlox was rooted in the desire to create engineering toys for girls, as she observed that most STEM toys were traditionally found in the 'boys' section. Over the past decade, GoldieBlox has reached millions of girls worldwide, profoundly impacting the landscape of children's toys and media.

## Outcomes from Table Discussions

Throughout the K-12 Innovation Lab, we hosted three panel discussions that ignited dialogues around key themes in education and innovation. Following each panel, we encouraged attendees to further delve into the topics through breakout table discussions. Using Mentimeter, an interactive presentation tool, we were able to capture, in real-time, the insightful responses from our audience. This digital platform, designed for live engagement, not only amplified our reach but also ensured a productive, inclusive, and engaging environment. Responses were sorted into different themes and the three most frequently occurring themes for each question are highlighted below.

### Panel One: Igniting College and Workforce Readiness through STEM Career Awareness

Increasing awareness of the world of work and potential careers has been identified as a strategic priority to address gaps in STEM education and workforce development. Impactful career awareness activities give young people broader exposure to the working world they will one day enter and help them “connect the dots” between school and career, keeping them motivated to graduate with the skills they need for the future. This panel explored meaningful efforts by school districts, employers and other K-12 stakeholders to expose students to educational opportunities and jobs that align with their interests and aptitudes.

**Question 1:** What strategies are most successful in exposing students to educational opportunities and jobs that align with their interests and aptitudes?

**Experiential Learning**

*“Internships at the companies, mentoring, teacher exposure”*

**Professional Engagement**

*“Engaging teachers with industry”*

**Industry Exposure & Awareness**

*“Awareness campaigns and hands-on experiences that are compelling”*

**Question 2:** How can employers and other stakeholders best partner with schools to increase awareness of the world of work and potential careers?

**Engagement and Partnerships**

*“Saying ‘yes’ more when schools call to develop partnerships.”*

**Collaborative Partnership**

*“Partner with nonprofits already working with those schools.”*

**Exposure and Transparency**

*“Pull back the curtain on operations careers not in public view.”*

## Panel Two: Developing Skills and Competencies for STEM Workforce Success

Work-based learning provides students with real-life work experiences that enable them to learn and apply academic and technical skills, develop their employability, and open students' eyes to the connection between school and career. Increasing access to work-based learning opportunities is an important strategy for growing the talent pipeline for employers in local communities and beyond. Panelists discussed how innovative and high impact efforts in this space can prepare students for successful STEM outcomes.

**Question 1:** What skills and competencies do you think are most important for students to develop through work-based learning?

Soft Skills/Job Skills

*"Both soft skills and specific job skills."*

Communication/ Collaboration

*"Communication, teamwork, collaboration."*

Problem Solving/ Critical Thinking

*"Problem solving and critical thinking."*

**Question 2:** What is the biggest challenge you have faced in implementing work-based learning opportunities and if so, how have you addressed it?

Resources/ Funding

*"We've had a huge amount of inbound interest but don't have the resources to meet the demand. The resources required to develop a program and then have a dedicated staff member manage it."*

Industry Engagement/ Partnerships

*"Connecting corporate volunteers with programs and kids in a scalable approach. Tried working with an established mentor connector organization, did not work."*

Opportunities

*"Not enough opportunities to match up with interest."*



## Panel Three: Building Effective Collaborations to Advance STEM Outcomes

This panel featured leaders who are working to break down systemic barriers to student success through innovative collaborations. Panelists shared how they are building communities that enable collaborations through impactful efforts that put students on pathways to pursue, persist, and succeed in STEM education and careers.

**Question 1:** How do you define effective collaboration in the context of STEM education and workforce development?

### Mutual Benefit

*"Finding 1+1=5 partnerships where each partner is focused on what they do best toward a common goal and redundancies are eliminated."*

### Student Outcomes

*"Integrated pipeline with critical handoffs– k-12 to postsecondary to work."*

### Sustainability

*"Effective collaborations must be sustainable."*

**Question 2:** How can collaborations be structured to ensure that all partners benefit and contribute equitably?

### Clear Expectations/ Roles

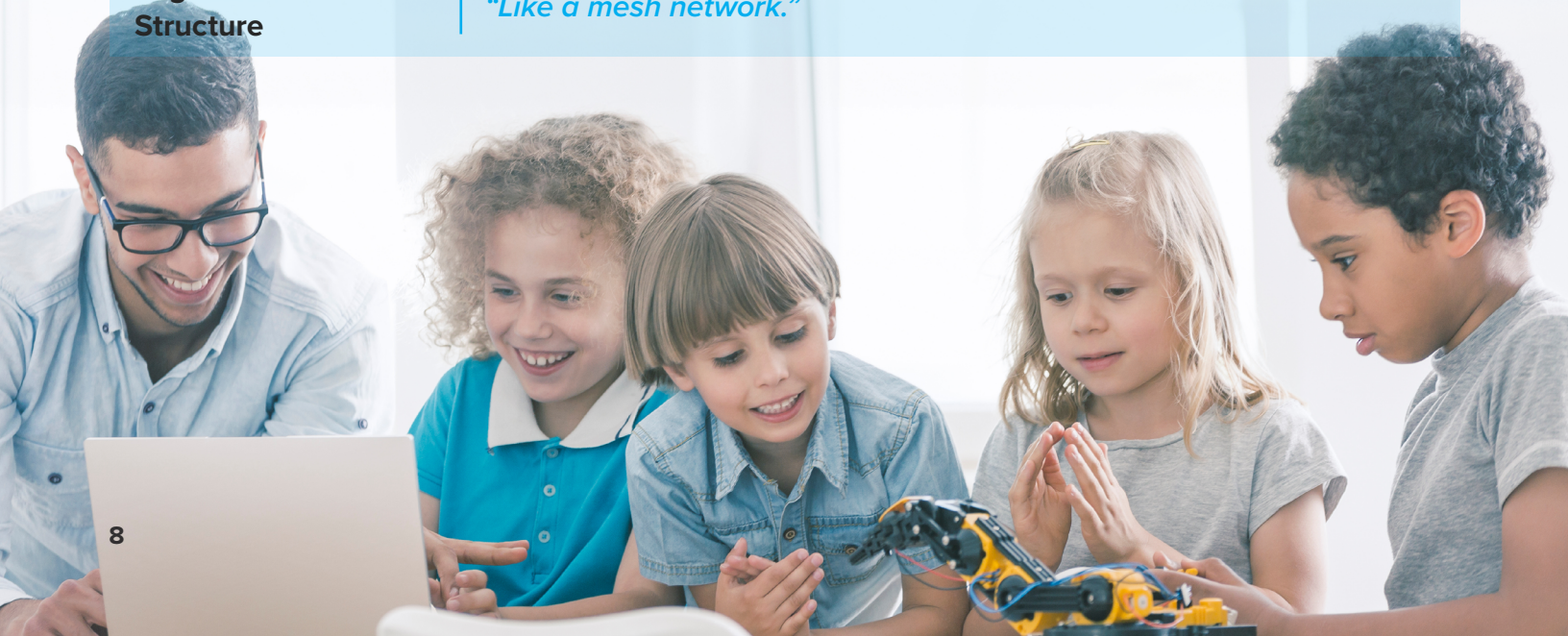
*"Clear and written responsibilities and timelines."*

### Trust and Open Communication

*"Candid, honest conversations about challenges and opportunities (not just best foot forward convos)."*

### Organizational Structure

*"Like a mesh network."*



# Acknowledgements

A special thanks to:



**Matthew Wunder**  
CEO, Da Vinci Schools



**Dr. Jo Webber**  
CEO, STEMconnector



**Ted Wells**  
VP, STEMconnector



**Amy Etten**  
VP, STEMconnector



**Crissel Rodriguez**  
Director of Real-World Learning,  
Da Vinci Schools



**Michelle Rainey**  
Executive Director,  
Da Vinci Connect



**Drew Glassford**  
CEO, Boys and Girls Clubs  
of Dundee



**Doug Henderson**  
Director-STEAM, Val Verde  
Unified School District



**Rob Lasalvia**  
Partnership Manager, Office of  
STEM Engagement, NASA



**Deborah Kariuki**  
Director/Faculty - Computer  
Science Education, UMBC



**Ron Ottinger**  
Executive Director, STEM  
Next Opportunity Fund



**Debra Sterling**  
Founder and CEO,  
GoldieBlox

## STEMconnector K-12 Lab Brief



**Susan Patterson**  
Director, Career & Technical Education,  
Arlington ISD



**Lynn Schroetter**  
High School STEM  
Intern Program Manager,  
Abbott



**Cecilia Retelle  
Zywicki**  
CEO, Transeo



**Angela Consani**  
Founder and CEO,  
Bioscience Core Skills  
Institute



**Renee Aaron**  
Partnership Specialist,  
STEMconnector



**Adam Galia**  
Government &  
Community Relations  
Specialist, Boeing



**Crystal Lovelady**  
Workforce  
Development  
Advisor, Shell



**Karin Wu**  
Chief of Staff, Growth  
Strategy, Think  
Together



**Dr. Mike Karlin**  
Assistant Professor,  
Liberal Studies / STEM,  
California State University,  
Dominguez Hills



**Alex Servello**  
Director,  
Corporate Social  
Responsibility,  
Verizon

## STEMconnector Resources

Click below to check our recent releases:

**DEIA Insights: LGBTQ+ People in STEM**

DEIA in STEM: Pride Month

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DEIA in STEM: Asian Pacific American Heritage Month

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**DEIA in STEM: Strategies to Bridge the STEM Talent Gap**

STEMconnector Webinar

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**DIVERSITY, EQUITY, INCLUSION & BELONGING IN INSURANCE: AN OPEN & HONEST DIALOGUE**

MWM VII Webinar: Diversity, Equity, Inclusion & Belonging in Insurance – An Open & Honest Dialogue

Million Women Mentors Webinar

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**Diversity, Equity, Inclusion, and Accessibility (DEIA) in STEM: 2023**

Research Report

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2023 Q1

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State of STEM Executive Summary, 2023

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