3rd Annual Maker Educator Convening

Impact and Outcomes of Maker Education: Empowering Youth and Educators

May 16–17, 2017

Autodesk Gallery & Galvanize

San Francisco, CA
# 3rd Annual Maker Educator Convening

**May 16–17, 2017**

#MakerEdConvening
tinyurl.com/makeredconvening

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@MakerEdInitiative [MakerEd.org](http://MakerEd.org) @MakerEdOrg /MakerEducationInitiative @MakerEdInitiative
About Maker Ed

Maker Ed is a national non-profit organization that provides educators and institutions with the training, resources, and community of support they need to create engaging, inclusive, and motivating learning experiences through maker education. We envision every young person having equitable access to educational activities that collectively develop their skills, knowledge, and ways of thinking, and which recognize and value their lived experiences. Through maker education, a hands-on, learner-driven, and open-ended approach, youth develop new perspectives, confidence in their own abilities, and a passion for learning. Through our programs, trainings, and events, Maker Ed plays a national leadership role in both broadening access to and deepening the impact of maker education for youth and educators alike. By working directly with educators, Maker Ed’s programming has reached about 667,000 youth since its launch in 2012.

Learn more about the impact of Maker Ed’s work.

Convening Goals

In order for the maker education movement to be sustainable, we must make visible the many positive and beneficial outcomes of making for both youth and educators. One way to do this is to highlight the diverse outcomes of maker-centered learning for all participants. At the Convening, educators and practitioners will showcase the many ways maker education has impacted educator practice and youth learning. Additional goals include:

- Connecting both formal and informal maker educators
- Sharing examples of the impact of maker education across various settings
- Offer diverse formats to explore and discuss the impact and outcomes of maker education

Thank You to Our Sponsors

The Convening is made possible by the generous support of Chevron, Autodesk, Intel, MakeyMakey, micro:bit, Galileo Camps, and Sonoma State University’s Maker Certificate Program
WE AGREE.

Chevron is proud to sponsor the Maker Educator Convening.

Today’s students go on to become tomorrow’s employees – including ours. At Chevron, we support science, technology, engineering and math education to help students develop real-world problem-solving and critical-thinking skills. We’re preparing them for the opportunities ahead. It’s good for the future of our community. And our company.

Learn more at chevron.com
Opening Reception Agenda
Tuesday, May 16th

The opening reception will be held at the Autodesk Gallery,
The Landmark Building at One Market St. #200, San Francisco, CA

6:00 PM - 7:00 PM Opening Reception, Sponsored by Autodesk

This year, Maker Ed is celebrating its 5-year anniversary. We invite you to join us in celebrating our accomplishments and reflecting on the last five years (2012-2017).

What are the most significant milestones of the past five years—for Maker Ed, for maker education, and for you?

7:00 PM - 8:00 PM Welcome & Maker Ed’s 5th Anniversary Celebration

Dale Dougherty, Founder & CEO, Maker Media

Mary Hope McQuiston, Vice President, Autodesk Education Experiences

Tom Kalil, Eric and Wendy Schmidt Group and UC Berkeley

Stephanie Chang, Director of Programs, Maker Ed

Trey Lathe, Executive Director, Maker Ed

8:00 PM - 9:00 PM Making and Reflecting

Envisioning the next five years in maker education (2017-2022): What can we build towards together?
Convening activities will take place at both *Galvanize* and the *Autodesk Gallery*. Be sure to check the agenda for specific location information. See page 22 for directions between the spaces, and information about Uber ride credits for Convening attendees.

<table>
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<th>Time</th>
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<tr>
<td>8:00 AM - 8:45 AM</td>
<td>Breakfast &amp; Registration (Galvanize)</td>
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<td>8:45 AM - 10:00 AM</td>
<td>Welcome &amp; Keynote (Galvanize)</td>
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These one hour, hands-on workshops will take place throughout Galvanize and the Autodesk Gallery. See pages 10-15 for full workshop descriptions and presenter information.

**Workshop A:**
*Autodesk, Curie/Gauss Conference Room*
Integration of Making and STEM-Rich Programs Through Community Science Workshops

**Workshop B:**
*Autodesk, Gallery*
Mechanical Toys and Why Low Cost Making is Important

**Workshop C:**
*Autodesk, Gallery*
Creating Virtual Reality Learning Experiences

**Workshop D:**
*Galvanize, Boardroom*
Authentic Inclusion & Hands-On Engagement: Empowering Special Education Students & Students of Color through Culturally Responsive Maker-Centered Learning

**Workshop F:**
*Galvanize, Speakeasy*
Making Connections: Facilitating Learning Through Making

**Workshop G:**
*Galvanize, Theater*
Engineering for Good: Designing Solutions for the Plastic Problem

**Workshop H:**
*Galvanize, Theater*
Open Portfolio Project

**Workshop I:**
*Galvanize, Theater*
How We Spent a Year Making in Third Grade and Killed It on the Test (Without Teaching to It)

**Workshop J:**
*Galvanize, Speakeasy*
Ask a Maker Educator Discussions
These one hour, hands-on workshops will take place throughout Galvanize and the Autodesk Gallery. See pages 10-15 for full workshop descriptions and presenter information.

**Workshop A:**
Autodesk, Curie/Gauss Conference Room
Fab Labs and Corporate Partnerships for Education: Success & Challenges

**Workshop B:**
Autodesk, Gallery Workshop Space
How to Get Started With 3D Design in Your Classroom or Makerspace

**Workshop C:**
Autodesk, Gallery
Storytelling (With Real Blocks!) Using Bloxels

**Workshop D:**
Galvanize, Boardroom
Tell Your Story

**Workshop E:**
Galvanize, Potrero Hill
Unmask the Spirit of Maker-Centered Learning

**Workshop F:**
Galvanize, Speakeasy
Making Standards Work: Strategies for Aligning Cross-Curricular Standards with Hands-on Maker Activities with K-6 Students

**Workshop G:**
Galvanize, Speakeasy
Ask a Maker Educator Discussions

**Workshop H:**
Galvanize, Theater
A Framework for Supporting Learning in Museum and Library Makerspaces

**Workshop I:**
Galvanize, Theater
Making to Promote Equity, Access, and Language Development in the NGSS Classroom and Beyond

**Workshop J:**
Galvanize, Theater
What Floats Your Boat?

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12:30 PM - 1:30 PM        Box Lunch (Galvanize)

Grab your lunch and join an informal meetup; everyone is welcome!

Higher Education Meetup: Carol Pepper-Kittredge and Deborah Bird, California Community Colleges (CCC) Maker Project  
Theater, Galvanize

Maker Promise (K-12 Educators) Meetup: Josh Weisgrau, Digital Promise  
Theater, Galvanize

Engineering Meetup: Andrea Aust, Science Education at KQED  
Speakeasy, Galvanize

Early Childhood Meetup: Lisa Regalla, Bay Area Discovery Museum  
Speakeasy, Galvanize

Librarian Meetup: Katie Barthelow, Maker Ed  
Speakeasy, Galvanize

Nation of Makers Meetup: Dorothy Jones-Davis, Nation of Makers  
Boardroom, Galvanize

1:30 PM - 2:45 PM        Demonstrations (Galvanize & Autodesk Gallery)

Demonstrations will take place throughout Galvanize and the Autodesk Gallery. Use this time to explore both spaces. See pages 16-19 for a full list of demonstrators, topics, and locations.

2:45 PM - 3:00 PM        Snacks (Galvanize)

3:00 PM - 4:00 PM        Quick Talks (Galvanize)

All quick talks will take place in the Theater at Galvanize. See pages 20-21 for a full list of presenters and titles.

4:00 PM - 4:30 PM        Next Steps and Closing Remarks (Galvanize)
Opening Reception
Speakers

Dale Dougherty is the founder and CEO of Maker Media, Inc. in Sebastopol, CA. Maker Media produces Make: Magazine, which launched in 2005, and Maker Faire, which was first held in the San Francisco Bay Area in 2006. Make: has been the catalyst for a worldwide Maker Movement that is transforming innovation in industry, hands-on learning in education and the personal lives of makers of all ages. Make: invites everyone to become a maker and integrate creative goals with technical skills. Dougherty was a co-founder of O’Reilly Media, where he was the first editor of their computing trade books, and developed GNN in 1993, the first commercial website. He coined Web 2.0 in 1993. Make: started at O’Reilly Media and spun out as its own company in January 2013. Dale grew up in Louisville, KY.

Thomas Kalil is a Senior Advisor to the Eric and Wendy Schmidt Group and Entrepreneur-in-Residence at UC Berkeley.

Previously, Thomas Kalil served as the Deputy Director for Technology and Innovation for the White House Office of Science and Technology Policy and Senior Advisor for Science, Technology and Innovation for the National Economic Council. Working with agencies across the federal government, OSTP’s Technology and Innovation Division developed dozens of White House initiatives that are designed to foster American leadership in innovation, emerging technologies, and the industries of the future. Tom also recruited champions of the Maker Movement to the White House (Stephanie Santoso and Andrew Coy), who helped organize the White House Maker Faire and the National Week of Making.

Mary Hope (“MH”) McQuiston leads all go-to-market functions for AEX, including strategy, business development, platform development, marketing and field engagement.

MH has been at Autodesk since 2004, most recently leading business, marketing and operations for Forge, where she and her team produced the inaugural Forge DevCon, bringing together over 1,200 developers, customers, and students. Before Forge, MH was a founding member of Autodesk’s consumer and 3D printing business where she helped grow the group’s community of creative consumers to over 220 million, and launched the Ember 3D printer, the company’s first hardware product.

MH is passionate about making Autodesk’s powerful design and making technology accessible to kids, makers, hackers, start-ups, and developers everywhere.
Trey joined Maker Ed as its Executive Director in October 2014. Trey received his Ph.D. in molecular biology in 1997, and after four years of genomics research at the European Molecular Biology Laboratory in Heidelberg Germany, he started the company OpenHelix.

In 2012, Trey became an American Association for the Advancement of Science (AAAS) Fellow at the National Science Foundation. In this role he worked in the Directorate for Computer & Information Science & Engineering directorate supporting programs to broaden participation of women and underrepresented minorities in the computer and technology fields. Additionally, Trey served as co-chair for both the first D.C. Mini-Maker Faire and the “Making Education Great” symposium that sought to bring educators, makers, and government agencies together to discuss the power of making in education.

Stephanie Chang is the Director of Programs at Maker Ed, where she is responsible for overseeing Maker Ed’s program and project offerings, including Maker Corps, Maker VISTA, Making Spaces, Young Makers, the Open Portfolio Project, and the online Resource Library. She also ensures cohesion between programs and Maker Ed’s larger organizational goals. Previously, with Maker Media’s Makerspace project, Stephanie worked closely with fifteen northern California schools to define and develop makerspaces and making programs in schools. Prior, she worked in educational research and evaluation, designed curriculum, led the science and technology summer program at The Tech Museum, and taught environmental and marine science. Stephanie holds a Bachelor’s in Biology from MIT and a Master’s degree from the Learning, Design, and Technology program at Stanford University’s Graduate School of Education.
Brent Jackson is the Project Director of Make the Way, a California Mathematics Science Partnership project. He is an advocate for equitable and excellent mathematics instruction for all students and a former middle school math teacher.

Ben Ford is Professor of Mathematics at Sonoma State University, and currently the Chair of the University’s faculty. He has been the faculty advisor for the California Math Project: North Coast since its founding in 1999.

Improving Student Agency, Authority, & Identity in K–8 Mathematics through Making

How can maker challenges in a math class help to level some traditionally-skewed playing fields? How can authentic maker challenges be leveraged to let everyone in a class share in students’ exciting discoveries? We will share unique maker challenge learning cycles for K–8 math classrooms, developed through a partnership between the Santa Rosa City Schools, Sonoma State University, and the California Math Project: North Coast. The challenges work in regular math classrooms, have very low consumable costs, and open up important grade-level mathematics for further exploration. Currently, they are being piloted in many of the district’s most diverse schools, and enthusiasm is high. Preliminary results suggest positive impacts on students’ mathematics learning, and teacher observations suggest increased student agency, authority, and identity in mathematics.

Learn more about Project Make the Way.
Workshops: Track #1
10:15 AM – 11:15 AM

Integration of Making & STEM-Rich Programs Through Community Science Workshops

Jerry Valadez & Jose Sandoval, Community Science Workshop (CSW) Network
Autodesk, Curie/Gauss Conference Room

The CSW Network mission is to serve underrepresented students in high-need communities with unique and engaging hands-on making and STEM-rich curriculum and programs. Learn how the CSW Network integrates STEM & making activities and immerses communities with science, engineering, and environmental education accessible to underrepresented students, vulnerable youth, and English-language learners.

Mechanical Toys & Why Low-Cost Making is Important

Donna Sangwin, ReCreate
Autodesk, Gallery

Do you worry that your maker curriculum doesn’t extend beyond the walls of your school? If your students can’t replicate a version of your maker experience at home, you are missing an opportunity to stretch their muscles of creativity and brain power. Join ReCreate for a lively talk and hands-on making session. We’ll talk about the importance of showing students low cost options to explore making, and make mechanical toys with reuse materials. Even if your school has a great maker space, this workshop will get you excited about making with low-cost materials that can be easily sourced.

Creating Virtual Reality Learning Experiences

Dan Blake & Matt O’Donnell, Sonoma County Office of Education
Autodesk, Gallery

Virtual Reality spending is forecast to increase from $13 billion in 2017 to $143 billion in 2020. In this workshop, participants will learn how to design VR learning experiences. We will discuss emerging trends in virtual reality as well as hardware and software available to help students and teachers become creators of VR content in maker classes as well as academic classes. Participants are encouraged to bring their smartphone and a laptop to this session in order to produce and share their own virtual reality creations.
Workshops: Track #1
10:15 AM – 11:15 AM

1-D  
**Authentic Inclusion & Hands-On Engagement: Empowering Special Education Students & Students of Color through Culturally Responsive Maker-Centered Learning**  
Paula Mitchell, Grass Valley Elementary School  
Galvanize, Boardroom

This workshop will showcase practices at Grass Valley Elementary school, a small public school in Oakland, California that focuses on maker-centered learning to engage and empower students of color and special education students. Maker Empowerment and Visible Thinking have become integral to Grass Valley’s school culture and curriculum. Through the use of an Agency by Design thinking routine and discussion of best practices around culturally responsive maker education, participants will come away with tools to use with their students that will help expand their mindsets so they can become agents of change in their world.

1-E  
**Sometimes Ya Just Gotta Make a Plan...**  
Ilya Pratt, Park Day School  
Galvanize, Potrero Hill

What planning tools do you use with your makers? We’ll look at one that we’ve used successfully in both classrooms and our makerspace, and which is based on an Agency by Design thinking routine. If you’ve got a good planning tool, bring it to share!

1-F  
**Making Connections: Facilitating Learning Through Making**  
Lisa Brahms & Peter Wardrip, Children’s Museum of Pittsburgh  
Galvanize, Speakeasy

Making Connections is a card game that encourages educators to consider three important aspects of facilitating maker-based learning experiences: learning objectives, facilitation strategies, and the learners themselves. Making Connections is a great professional learning tool for educators and educational leaders who are just beginning to integrate making as a learning process into their exhibits and programming, as well as those working to sustain and evolve their programs and spaces. Come learn about the IMLS-funded research behind the game’s development, engage in discussion about making as a learning process, and of course, play the game. Making Connections was developed through the integration of three different empirically based research studies conducted in collaboration with educators in MAKESHOP, the makerspace at Children’s Museum of Pittsburgh. Each of the core elements of the game reflects the findings from a related study.
Workshops: Track #1
10:15 AM – 11:15 AM

1-G

Engineering for Good: Designing Solutions for the Plastic Problem
Andre Aust, KQED
Galvanize, Theater

Develop your knowledge of the engineering design process with a quick dip into a hands-on, youth-centered design challenge. Engineering for Good takes middle-school aged youth through the engineering design process to develop solutions for impacts of plastics on the environment. Get a chance to go through the first few steps of the engineering design process, and discover how youth can share their engineering stories through media-making activities.

1-H

Open Portfolio Project
Stephanie Chang, Maker Ed
Galvanize, Theater

This hands-on workshop will provide educators and practitioners the opportunity to practice techniques for capturing learning through portfolios and bring lessons learned back to their educational settings.

1-I

How We Spent a Year Making in Third Grade & Killed It on the Test (Without Teaching to It)
Michelle Carlson, Future Development Group
Galvanize, Theater

Last year, a team of third grade teachers and Michelle Carlson worked all year to incorporate deep, engaging maker education into the curriculum and something great happened: the kids killed it on the test! Without teaching to the test, or feeling like they had to cram, they were able to support student growth, independent learner development, collaboration, critical thinking, and more through hands-on activities. This workshop will share how they did it and how you can too!

1-J

Ask a Maker Educator Discussions
Galvanize, Speakeasy
David Wells, New York Hall of Science; Danny Kirk, Maker Ed; Aaron Vanderwerff, Lighthouse Community Charter School

Need one-on-one support to talk through your burning questions about making? Want to share ideas and discuss best practices with amazing maker educators across various educational settings? Then join the Ask a Maker Educator discussion for an open, informal opportunity to receive one-on-one support, ask those burning questions, and share ideas and inspirations. See more of Maker Ed’s Ask a Maker Educator Series here.
Workshops: Track #2
11:30 AM – 12:30 PM

2-A  
**Fab Labs & Corporate Partnerships for Education: Success & Challenges**  
Autodesk, Curie/Gauss Conference Room  
Sherry Lassiter, The Fab Foundation & Janet Auer, Chevron

In 2014, the White House Office of Science Technology Policy hosted the first ever White House Maker Faire and called upon educators and communities to create a Maker Movement. Chevron made a $10 million commitment to build Fab Labs across the country with the Fab Foundation. This session will review our progress to date, what’s worked, where we have challenges, and opportunities ahead.

2-B  
**How to Get Started With 3D Design in Your Classroom or Makerspace**  
Autodesk, Gallery Workshop Space  
Michael Vergalla, Autodesk

Come for a fun workshop based on designing your own projects in Tinkercad and/or Fusion 360. See how designers of all ages have used 3D design to support making in classrooms, makerspaces, and beyond.

2-C  
**Storytelling (With Real Blocks!) Using Bloxels**  
Autodesk, Gallery  
Robert Pronovost, San Mateo County Office of Education

We will explore the use of Bloxels as a way to engage students in storytelling through game design. Bloxels consists of a physical board where a game designer can customize levels, characters, and items while building a comprehensive platformer video game.

2-D  
**Tell Your Story**  
Galvanize, Boardroom  
Suzette Duncan & Abigail Joseph, Edstoria

Learn a new skill and learn about your colleagues! In this workshop, we are focused on connecting educators, makers, and innovators through digital storytelling in order to celebrate the diversity of experiences, skills, and backgrounds in the maker community. If you are interested in redefining and broadening the making community to include all its diversity and adding a new skill to your digital making toolkit, come join the conversation.
Workshops: Track #2
11:30 AM – 12:30 PM

2-E

Unmask the Spirit of Maker-Centered Learning
Galvanize, Potrero Hill
Lisa Regalla, Bay Area Discovery Museum & Ryan Moreno, REM Learning Center

Masks have been used throughout history by ancient cultures for many different reasons, from performances and drama to rituals. The mask-makers in these cultures held positions of respect not only because of their craftsmanship, but also because they had to have spiritual/social and symbolic knowledge. Through this workshop, we take a closer look into the spirit of maker-centered learning by inviting participants to create masks while exploring topics around documentation through planning and empathy-building.

2-F

Making Standards Work: Strategies for Aligning Cross-Curricular Standards with Hands-on Maker Activities with K-6 Students
Galvanize, Speakeasy
Gina Silveira, Schaefer Charter School & Melissa Becker, Meadow Elementary School

We all feel the weight of adding “one more thing” onto our plate. But making and maker education don’t have to be “one more thing” added to an overcrowded curriculum. We will share strategies for infusing hands-on maker activities with a list of measurable student outcomes and cross-curricular standards. With these strategies, deciding “what to teach” becomes much easier. Come learn how to develop a list of student outcomes, learn how to use essential questions and challenges, and incorporate cross-curricular standards with maker education, all in an effort to engage students in their own learning.

2-G

Ask a Maker Educator Discussions
Galvanize, Speakeasy
David Wells, New York Hall of Science; Danny Kirk, Maker Ed; Aaron Vanderwerff, Lighthouse Community Charter School

Need one-on-one support to talk through your burning questions about making? Want to share ideas and discuss best practices with amazing maker educators across various educational settings? Then join the Ask a Maker Educator discussion for an open, informal opportunity to receive one-on-one support, ask those burning questions, and share ideas and inspirations. See more of Maker Ed’s Ask a Maker Educator Series here.
Workshops: Track #2

11:30 AM – 12:30 PM

A Framework for Supporting Learning in Museum & Library Makerspaces

2-H

Through a cooperative agreement with Institute of Museum and Library Services, the Children’s Museum of Pittsburgh has developed a framework to support learning in museum and library makerspaces. The framework hinges on three general components: a focus on the purpose of the makerspace, the people who support making in the space and the pieces and parts that engage the learners in making. This session will engage participants with tools to reflect on their makerspace or maker program with an eye toward making refinement. Through the intentional design of makerspaces, maker educators can influence not only their learners’ experience, but also the discourse around making and learning.

Making to Promote Equity, Access, & Language Development in the NGSS Classroom & Beyond

2-I

Making has the power to authentically engage students while building language and can be a critical tool for equitable access to information and skills in the science classroom and other learning spaces. Through discussions and hands-on activities, participants will develop a deeper understanding of how NGSS-aligned maker lessons can be used to support student learning and language development. Participants will also have a chance to reflect on the power of making for individuals and groups of students with varying needs within science classes.

What Floats Your Boat?

2-J

Experience a simple maker challenge from Project Make the Way that opens up a whole world of mathematical exploration. We’ll play with water and foil, and see mathematical explorations that can build on the challenge at both sixth and eighth grade levels.
Demonstrations:
Autodesk, 1:30 PM – 2:45 PM

Circuits in the Classroom: Creating Engaging Hands-on Projects with Concrete Learning Objectives
• Diego Fonstad, Lectrify

Learn how building simple circuits and working with an eccentric rotating mass (ERM) motor can address concrete learning objectives including NGSS Physical Science concepts or Engineering Design practices.

From Scratch to JavaScript
• Jonathan Prozzi, Digital Harbor Foundation

This presentation will share steps for how to transition young programmers from Scratch to JavaScript.

Tech Fabulous: STEM & Fashion
• Mayank Malik, Code Hobbits

Learn about how curiosity- and passion-driven projects - can help solve the gender gap in STEM careers. Mayank will share examples of STEM fashion projects designed by student makers.

Tinkercad Tips, Tricks, & New Features
• Sarah O’Rourke and Wayne Losey, Autodesk

Tinkercad is a free and easy to use, browser-based 3D design and modeling tool for all—no experience necessary. If you can imagine it, you can design it using Tinkercad.

Robot Petting Zoo & Maker Camp
• Bridget Rigby, Maker Media

Interested in creating your own cardboard robot animals that playfully respond to zoo visitors? Visit this demo to learn how to start your own zoo in your school, library, museum, or other innovative learning space.

The Ins & Outs of 3D Printing
• Michael Vergalla, Autodesk

Come learn from Autodesk’s 2016 Artist-in-Residence as he shares his insights on the ins and outs of 3D printing in the Autodesk Gallery’s demonstration space.
Demonstrations:
Autodesk Gallery, 1:30 PM – 2:45 PM (cont.)

**Making and Coding: Sphero Robotic Cleanup Challenge**
- Liz Whitewolf, Carnegie Science Center Fab Lab

Come learn how Fab Lab Carnegie Science Center combines digital fabrication with coding in a fun engineering challenge: Spheros power the robotic cleanup efforts of a very dangerous nuclear meltdown location.

**Demonstrations:**
Galvanize Theater, 1:30 PM – 2:45 PM

**Any Place a Makerspace**
- Matthew Brocchini, Tinkering Lab

The Tinkering Lab’s Electric Motors Catalyst turns any classroom, library, or multi-purpose room into a studio for open-ended invention. Stop by see how some simple parts and three core ideas make naturally personalized learning classroom-friendly.

**Mockups Game: A Warm Up for Ideation and Prototyping**
- Liz Gerber, Design for America and Northwestern University

Looking for a new way to warm up for ideation? Prototyping? Teamwork? Come see Mockups in action. Mockups, a fast-paced card game used by makers and maker educators of all ages, pushes players to quickly create solutions for unusual users with niche needs and curious constraints.

**From Passionate Chaos to Planned Action**
- Kyle Metzner, East Bay School for Boys

Explore brainstorming graphic organizers for both students and teachers which have been road-tested by some of the most extreme learners—middle school boys!

**Open Data/Open Minds: Paper Circuit Science Journals**
- Elisabeth Sylvan, Nexmap

Open Data/Open Minds is a new program for 11- to 15-year-olds to develop data literacy and civic literacy through paper circuitry.
Documentations: Galvanize Theater, 1:30 PM – 2:45 PM (cont.)

**Documentation & Assessment in Maker-Centered Learning**
- Brooke Toczykowski & A’aron Heard, Agency By Design

  How do we shift the classroom from a place of compliance to one of self-directed creativity? Come learn about assessment tools that encourage learner-centered agency! See how K-12 educators in the [Agency by Design Oakland](#) fellowship have been experimenting with documentation and assessment practices in their diverse classrooms.

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**Leveraging Museum Exhibits as Educator Professional Development**
- Allison Wilhelm, The Tech Museum of Innovation

  This demonstration will explore the ways in which the Tech Museum of Innovation used their Bio Design Studio and mycelium mushrooms as a framing tool to teach design thinking.

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**Contact Mics—What Are They Good For?**
- David Wells, New York Hall of Science

  Explore the sonic quality of everyday materials and discover the hidden world of sound and vibration.

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**Demonstrations: Galvanize Speakeasy, 1:30 PM – 2:45 PM**

**Scratch 4 Self-Expression: Creating Story-Based Objects to Think With**
- Rosa Alemán, Rockshelf Studio

  This Rockshelf Studio demonstration showcases how social media platforms like Twitter and powerful learning tools like Scratch can be used to amplify voice and to map out meaningful personal stories.

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**Developing a Maker Culture in Your School, District, or Community**
- Smita Kolhatkar, Palo Alto Unified School District

  Since starting the school district’s first makerspace, we have come to realize that a maker culture is widespread in our community at Barron Park in Palo Alto. Come hear some of the key factors that have played a role in supporting students, staff, and a large part of our parent community with developing a school-based maker culture.
Wildebeest Parasites
• Davin Lyons, Galileo Camps

Can you design a parasite that latches onto a life-size wildebeest? Will your parasite have a successful combination of traits, allowing it to survive the next round of natural selection?

Maker Education in a 21st Century Library
• Nora Peters, Millvale Community Library

Learn about maker education programs at The Millvale Community Library in Western PA, a unique model for the many roles a library can perform in the 21st century.

Solar Scavenger Hunt
• Asia Ward, RECharge Labs

Solar Scavenger is a classroom based activity that teaches about solar panel variables using quantifying and qualifying data such as voltage, current, and loads such as lights and motors.

STEAM Meets Maker Ed: Exploring How Digital Manipulation Affects Physical Objects
• David Weiss, SAM Labs & Sarrie Paguirigan & Jason Borgen, Portola Valley School

Explore exciting STEAM projects using SAM Labs smart construction kits.
Quick Talks
Galvanize Theater, 3:00 PM – 4:00 PM

Why Does Making Matter? Dimensions of Learning Worth Consideration
• Karen Wilkinson, The Tinkering Studio at The Exploratorium

Through illustrated examples, learn about the Tinkering Studio’s latest research study looking at making & tinkering in museum and school environments.

Space Matters: Designing Urban Maker Spaces
• Monica Haslip, Little Black Pearl

Explore how a unique maker space creates a culture of exploration and innovation for underserved communities.

Preparing Future STEM Teachers to Make
• Mike DeGraff, UTeach Institute

UT Austin is piloting a Maker Educator Certification program for pre-service STEM teachers interested in taking their passions into the classroom. Hear the stories of their first students and their future plans.

Making As Learning: Some Core Principles
• Carlos Ayala, Sonoma State University

Quality making can support positive affective dispositions in students and can promote learning across the curriculum. How can practitioners create a narrative around meaningful outcomes and what are some of the practices that can promote these important gains?

Does This Movement Have a Compass? A Conversation About Where Maker Education is Going
• Colin Angevine, Digital Promise

What can educators learn as maker education moves from the early adopter phase and grassroots momentum to a critical mass of schools looking to add making into their programs in systemic ways?

Connection Through Commonality: A Rural Community in Idaho Both Ready and Resistant to Making
• Jeff Stratter, Salmon Public Library

Learn about Jeff’s one-and-a-half-year journey from an urban environment to one of the most remote regions in our country and discover the challenges of making in rural Idaho.
Quick Talks
Galvanize Theater, 3:00 PM – 4:00 PM

Making Computer Science Relevant in the Hood
• Kennan Scott, West Oakland Middle School
  Transportation engineer and middle school engineering teacher Kennan Scott will highlight how important it is for computer science to be in schools, especially urban schools. He will share the efforts currently happening in Oakland to create a more diverse, inclusive, and supportive tech culture for youth.

Unconventional Resources: Creative Capacity Building
• Crystal Le & Maria Renteria, Grass Valley Elementary School
  As VISTA members, Crystal and Maria are constantly on the lookout for additional physical resources that could be used in their school's makerspace. In this talk, they share some of their experiences and best practices in resource mapping and community outreach.

Inspiring All Girls to Change the World Through Making
• Nikole Collins-Puri, Techbridge Girls
  Techbridge Girls integrates equitable practices that inspire and engage all girls so that they can see themselves as makers and connect to this ever growing movement.

The Maker Mindset at Work
• Prinda Wanakule, The Tech Museum of Innovation
  The maker mindset has had a profound impact on the Tech Museum’s staff. In this presentation, Prinda will share stories of personal growth for staff members and how encouraging the maker mindset in staff has resulted in greater experiences for museum visitors.

Start Simple to Keep Making!
• Danielle Martin, The Fab Foundation
  A series of reflections on how being mindful of the learner can help facilitate maker educational experiences.

Nurturing Failure in a Makerspace and Beyond
• Sam Erwin and Hadiyah Shabazz, Maker Ed
  Sam and Hadiyah will dive into the topic of failure and explain how they believe we can better support youth in makerspaces, and beyond, by taking an honest and thoughtful approach to the barriers preventing people from accepting failure.
Maps

Walking directions between Autodesk and Galvanize. The walk takes about 15 minutes.

Maker Ed is providing a $10 Uber ride credit to any Convening attendee needing assistance traveling between the two locations.

Enter the following promo code in the Payments tab of your Uber app to claim your ride pass:

e26u3ud
Galvanize, Lower Level

Stairs to first floor (Boardroom, Elevator to Rooftop Terrace)

This way to Speakeasy

Potrero Hill

Speakeasy