



Afterschool Alliance

Build, Create & Innovate: Engaging Youth Through Making



Accomplishment



DESIGN & Documentation



COLLABORATIVE



PLAYFUL

Thank you for joining!
The webinar will begin shortly.





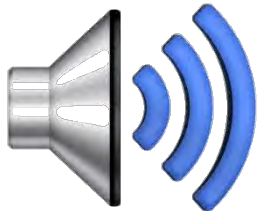
Experiencing Delays?

Try closing out the other programs running on your computer.



Have a question or comment?

Use the group chat to interact with speakers and other participants.



Audio difficulty?

Dial: 1-877-860-3058

1135574



Part 1:
Intro to Maker Culture



Part 2:
Engaging Youth Through
Making



Part 3:
Local & State Level Support for
Making

Ageless
Empowerment
Independence
Excitement
Documentation
Reiterative
Joyful
Design
Support
Risk
Playful
Exploration
Interdisciplinary
Discovery
Learning
Collaborative
Skills
Challenge
Accomplishment

**The Many
Faces of
Making**

**Research &
Evaluation**

**The World of
Webmaking**

**Program
Growth &
Sustainability**



Kylie Pepler

Assistant Professor
Indiana University

Leah Gilliam

Project Director
Mozilla; Hive NYC



Lisa Regalla

Program Director
Maker Education Initiative



MAKE

to

LEARN

in Afterschool Spaces

Kylie Pepler
Indiana University

Introduction:

Make-to-Learn

"I want us all to think about new and creative ways to engage young people in science and engineering, whether it's science festivals, robotics competitions, fairs that encourage young people to create and build and invent—to be *makers* of things, not just consumers of things."

--President Barack Obama

2013 Launch of Educate to Innovate Campaign

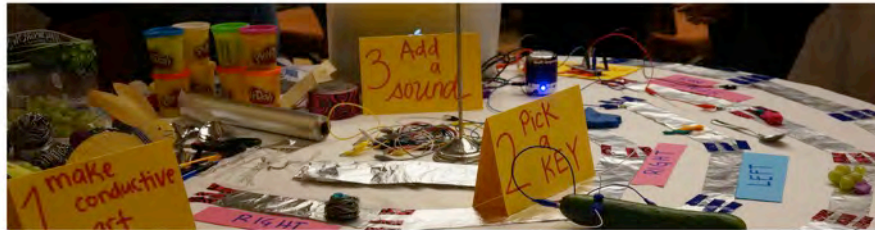
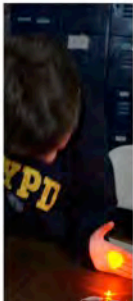
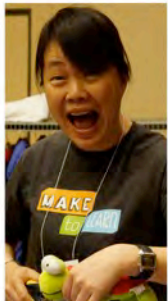
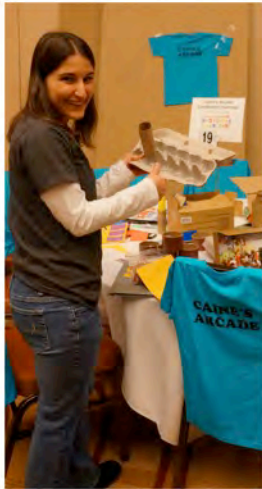
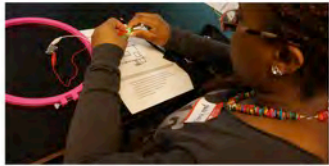
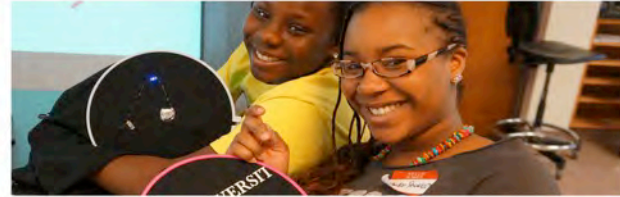


MAKE

m2l.indiana.edu

to

LEARN



MAKE

to LEARN



instructables

YOUTH CONTEST

Make-to-Learn:

The many faces of
making









Toy Hacking with
Maker Kids

MAKER KIDS

14

MAKER/KIDS

Step 4:

Be craft

MAKER/KIDS
TAPE

MAKE
to LEARN

MAKER KIDS

MAKER KIDS

MAKER KIDS

MAKER KIDS

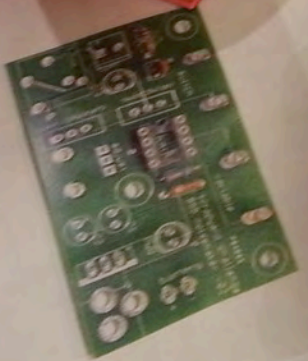
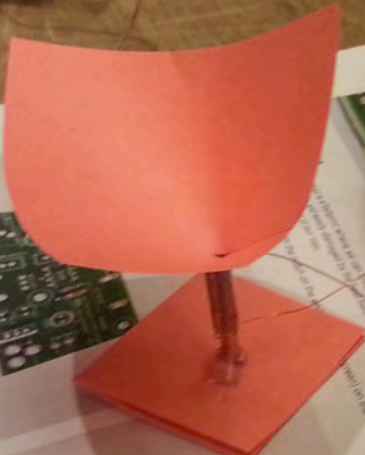
MAKER KIDS

MAKER KIDS

MAKER KIDS

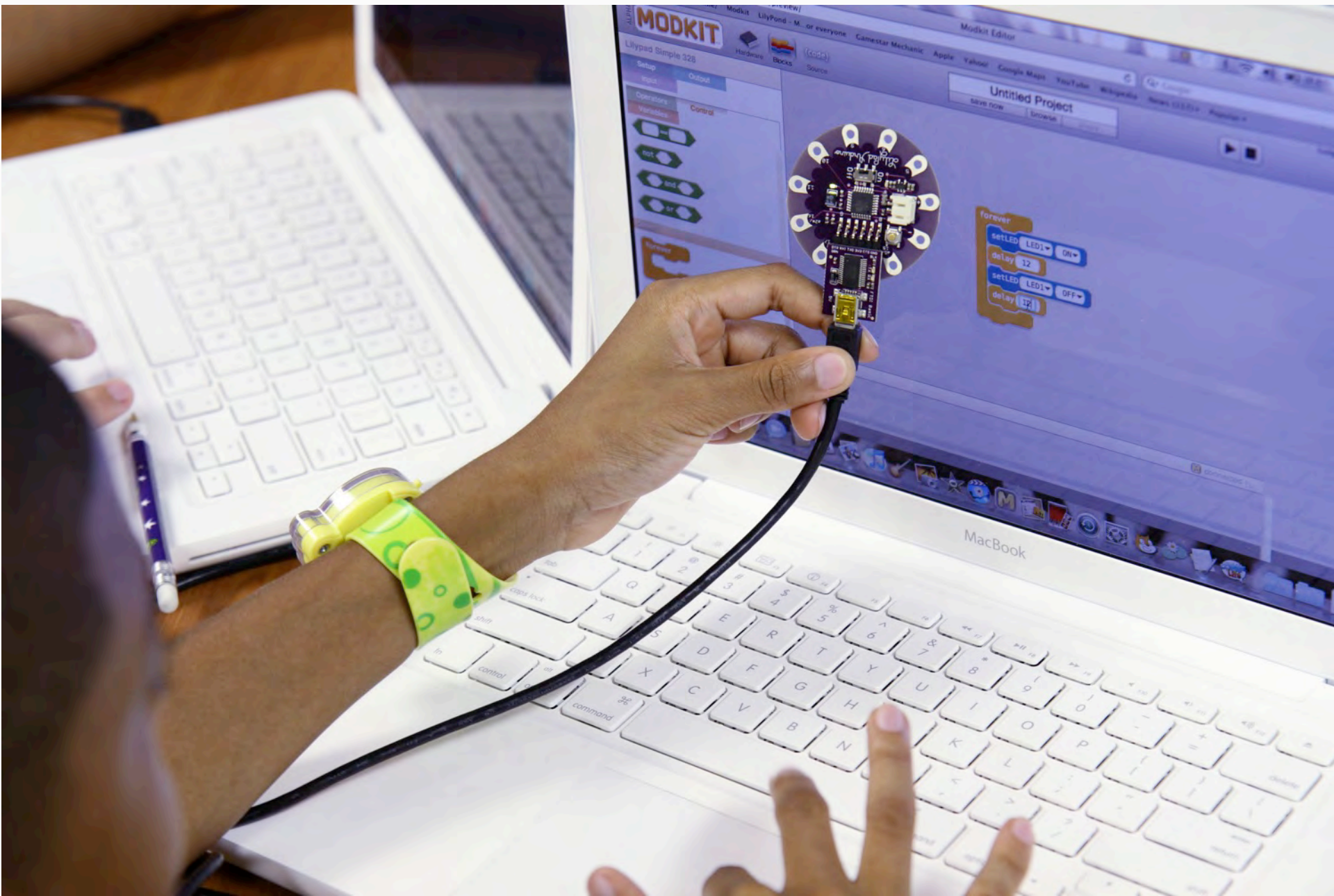


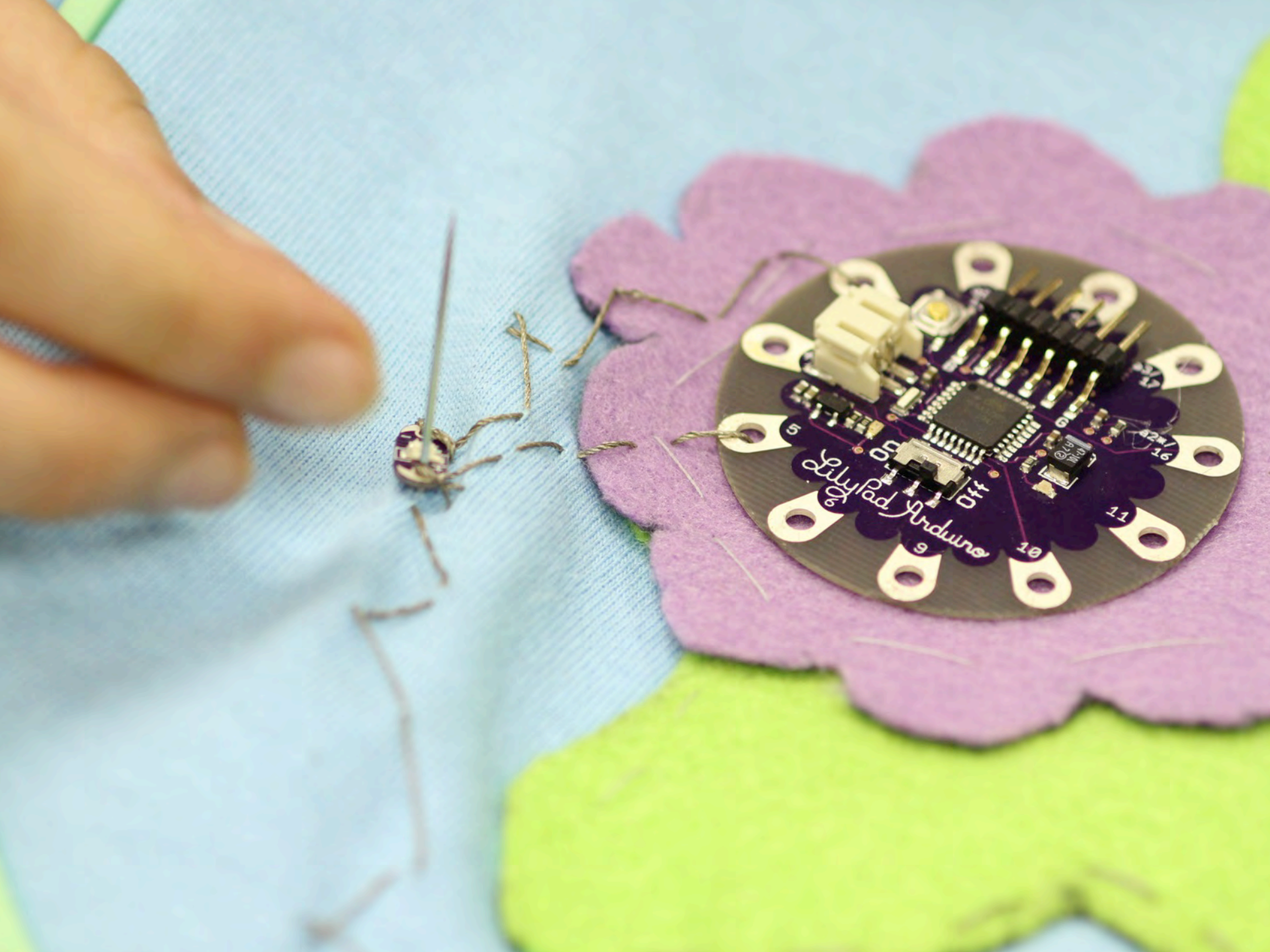
LOUISA CAMPBELL
1917, 636 2540
FASHION THE NEW SCHOOL FOR DESIGN
DESIGN + TECHNOLOGY PROGRAM











Make-to-Learn:

How do we help
facilitators?

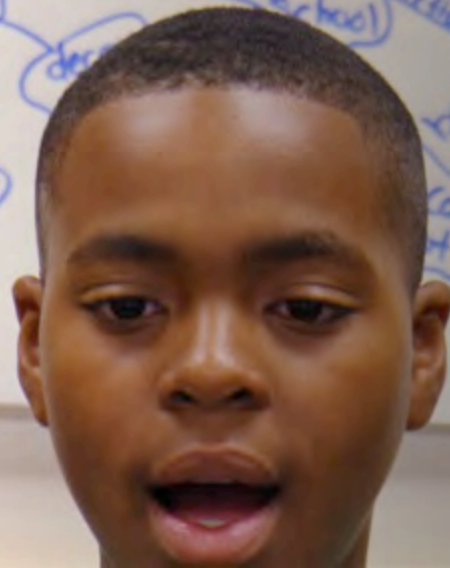
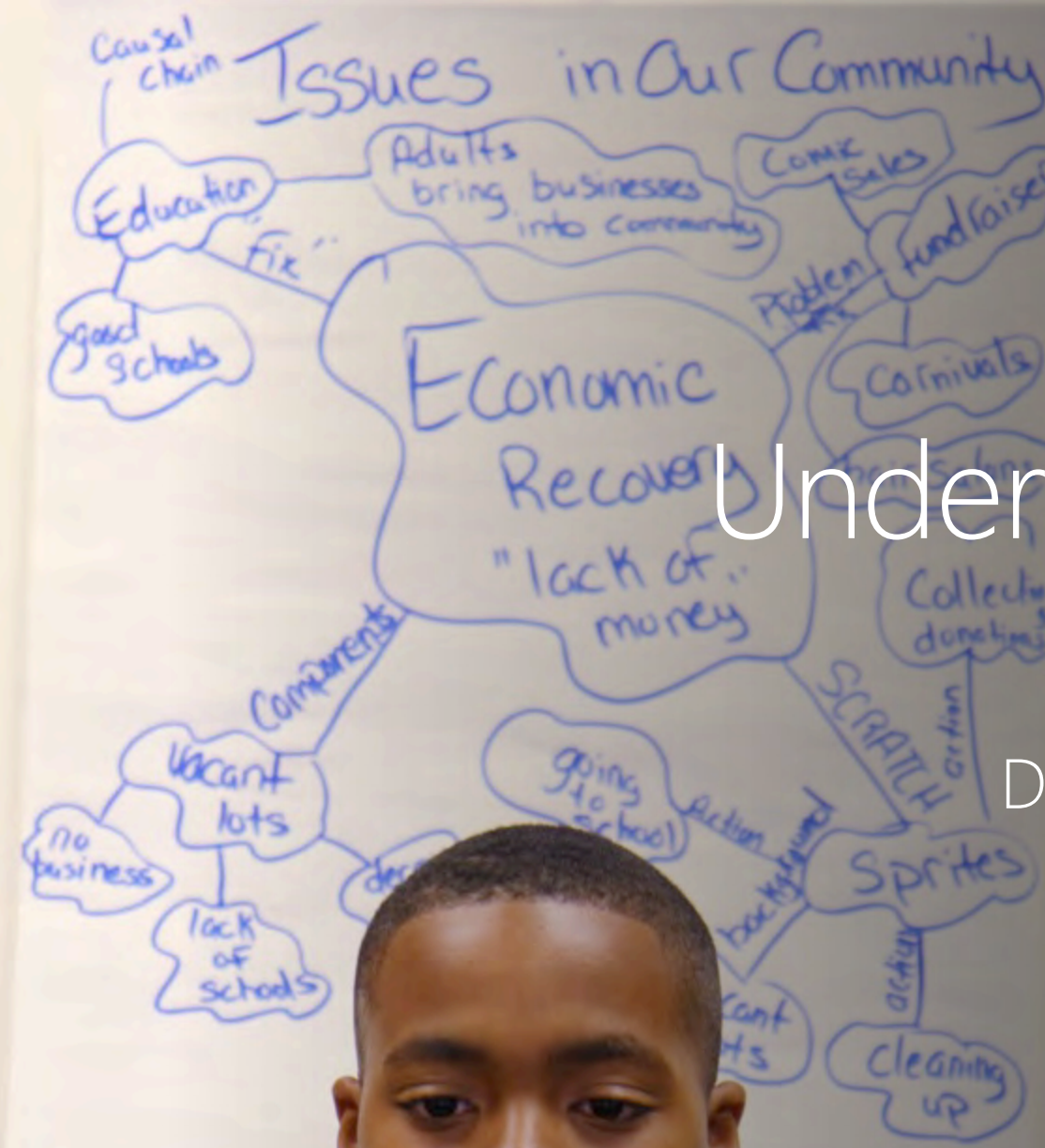
CHICAGO PUBLIC LIBRARIES



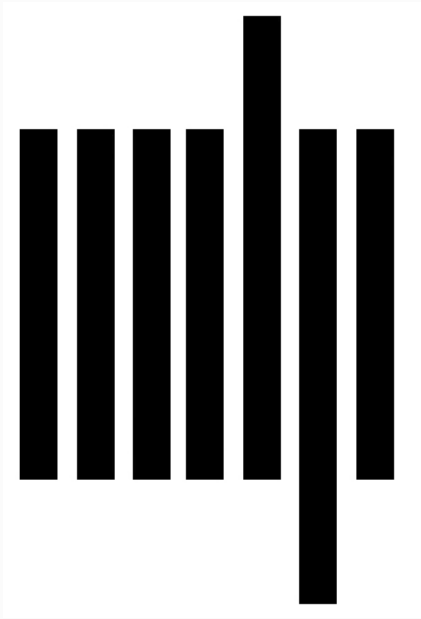


Understanding Systems

Digital design for a complex world



New Book Collection



Short Circuits:
Crafting
with DIY
Electronics

Game
Design with
Gamestar
Mechanic

Script
Changers:
Digital
Storytelling
with Scratch

Partners:



MacArthur
Foundation



Make-to-Learn:

Guiding Principles

Eight Guiding Principles (Peppler, in press)

1. Choose open-ended, personal, and aesthetic tools and materials
2. Make design thinking central
3. Create authentic combinations of STEM and the Arts
4. Facilitate easy, but challenging designs
5. Purposefully contrast multiple media, tools, and materials
6. Involve a range of disciplinary experts
7. Devise new assessments, pedagogy, and learning environments
8. Document and showcase work

Make-to-Learn:

Prior research



MacArthur
Foundation

TEXTILE MESSAGES

Textile Messages focuses on the emerging field of electronic textiles, or e-textiles—computers that can be soft, colorful, approachable, and beautiful. E-textiles are articles of clothing, home furnishings, or architectures that include embedded computational and electronic elements. This book introduces a collection of tools that enable novices—including educators, hobbyists, and youth designers—to create and learn with e-textiles. It then examines how these tools are reshaping technology education—and DIY practices—across the K–16 spectrum, presenting examples of the ways educators, researchers, designers, and young people are employing them to build new technology, new curricula, and new creative communities.

“This book will delight and inspire you with stories of wonderfully-inventive e-textile fashions and crafts. But don’t focus too much on the creations themselves, charming as they might be. What’s most exciting is not what people are creating, but how the act of creating is changing the ways people think about themselves. With e-textiles, a broader and more diverse range of people are starting to see themselves as designers and creators of new technologies, with growing confidence that they, too, can be active contributors to today’s digital culture.”

—Mitchel Resnick, LEGO Papert Professor of Learning Research, MIT Media Lab

“*Textile Messages* is such an extraordinary book, especially for anyone who marvels in the juxtaposition of unsuspecting elements (fashion and technology) and ways of being in the world (traditional crafts and modern innovation). If you are someone who loves the arts, is fascinated with the current technology and all it can do, this book will thrill you. If you are someone who is concerned about breaking the gender gap in computing, and making computer science accessible to all people, this book will inspire you, give you lots of ideas, and give you hope.”

—Jane Margolis, Senior Researcher, UCLA Graduate School of Education and Information Studies, author of *Stuck in the Shallow End: Education, Race, and Computing* and *Unlocking the Clubhouse: Women in Computing*

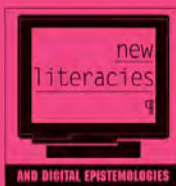
“Re-connecting craft with technology, e-textiles is a growing field that inspires new forms of personal expression and interaction design. This book elevates the practice of learning to use e-textiles by mapping the busy intersection of physical materials, electronics, and computation.”

—Dale Dougherty, President and CEO of Maker Media, *Make* magazine, and Maker Faire

“*Textile Messages* chronicles the creative integration of textiles, electronics, and computation in the service of education, innovation, and a more inclusive engineering culture. Bringing together the voices of engineers, artists, and educators, the book weaves together concrete examples of creative work and educational practice with thoughtful discussions of learning theory, feminist agendas, and historical perspective. It will appeal to educators, parents, makers, and researchers—anyone with an interest in women and technology, DIY culture, and educational innovation.”

—Mizuko Ito, Professor, Donald Bren School of Information and Computer Sciences, University of California, Irvine, author of *Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning with New Media*

WWW.PETERLANG.COM



ISBN 978-1-4331-1920-0



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TEXTILE MESSAGES

Buechley, Peppler, Eisenberg, Kafai, Eds.

PETER LANG



TEXTILE MESSAGES

Dispatches From the World of E-Textiles and Education

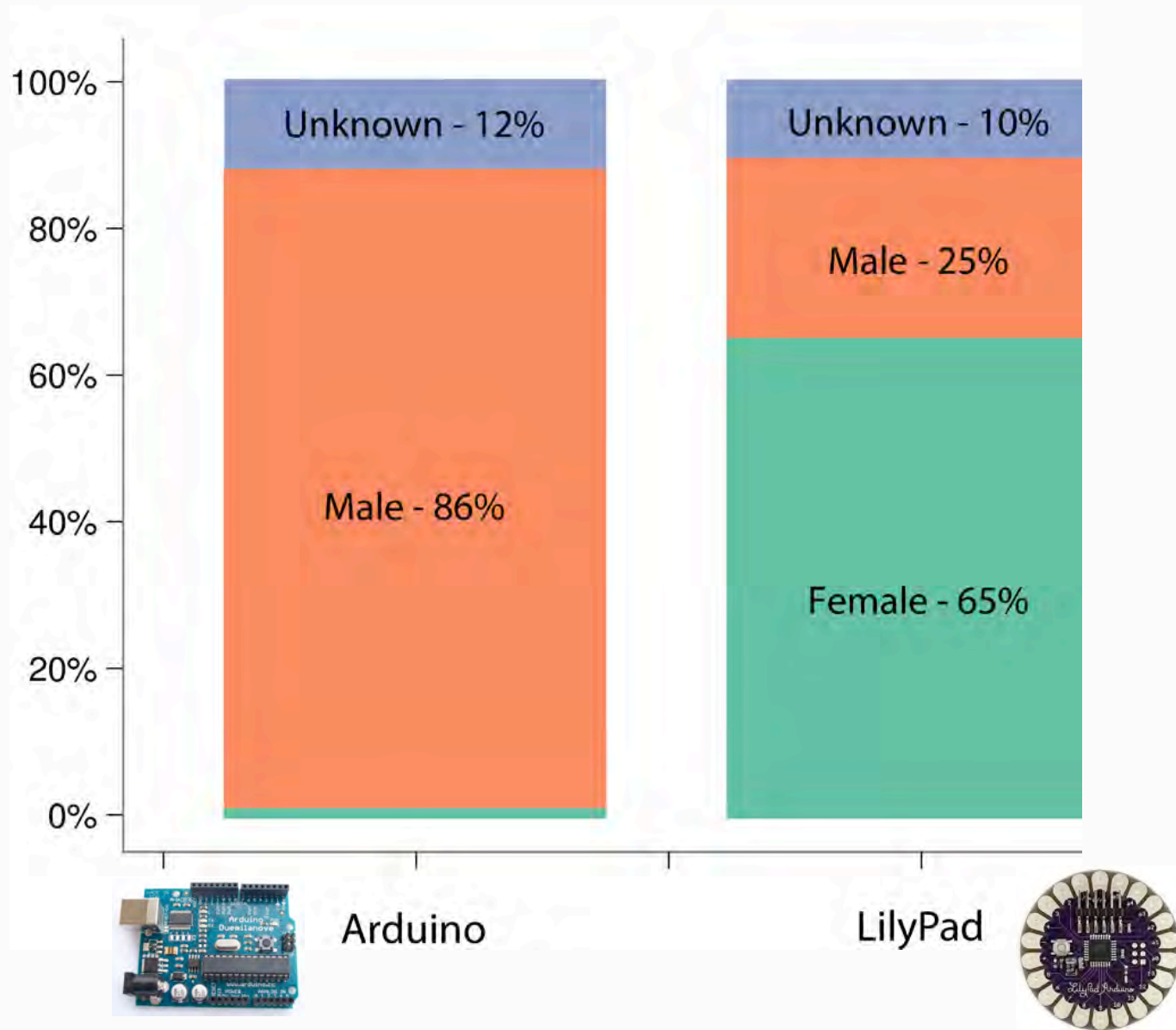
Edited by Leah Buechley · Kylie Peppler · Michael Eisenberg · Yasmin Kafai

Coming in 2013

Edited by Leah Buechley, Kylie Peppler,
Mike Eisenberg, and Yasmin Kafai

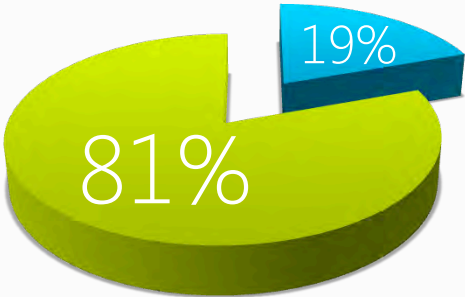


LilyPad in the wild (Buechley, 2013)

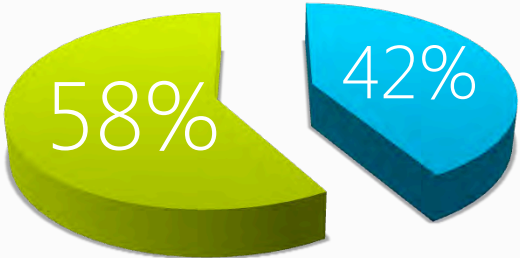


LilyPad in the classroom

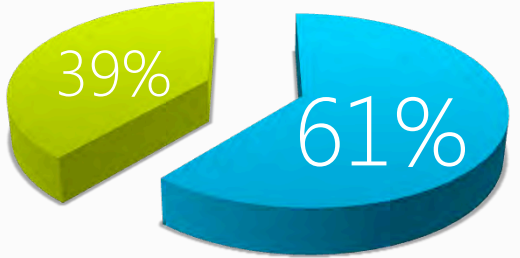
Positioning



Talking



Help-seeking

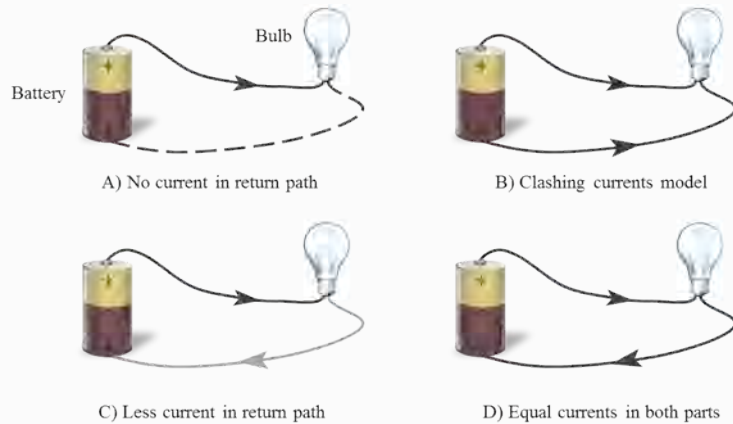


Girls

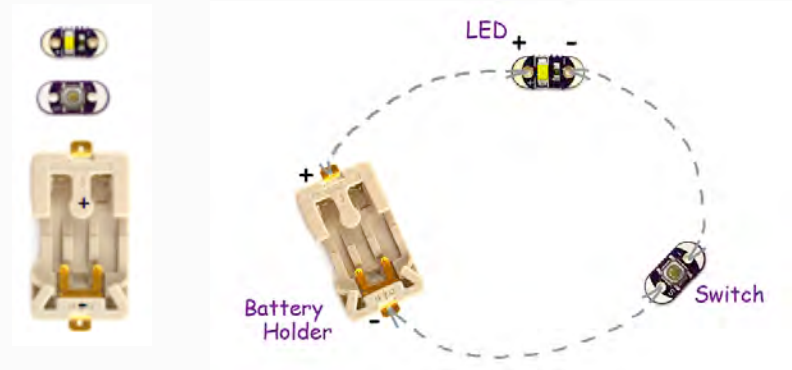
Boys

Assessing understanding of circuits

Traditional assessments

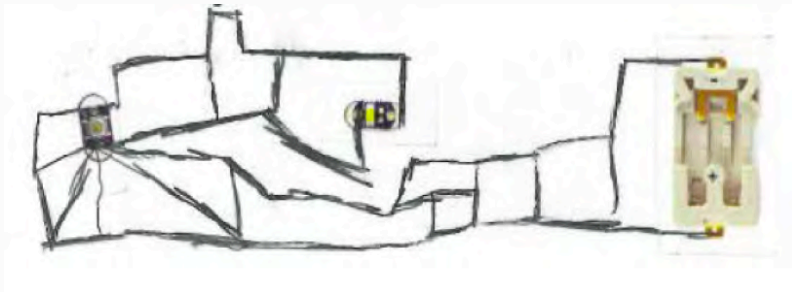


New assessments



Learning about circuits

Pre-Test Results



Post-Test Results



Significant results



Circuit Drawing Test	Mean	N	Standard Deviation	Significance 2-tailed
<i>Current Flow Pre-Test</i>	.46	17	.35	.004*
<i>Current Flow Post-Test</i>	.83	17	.30	
<i>Connectivity Pre-Test</i>	.24	17	.32	.033*
<i>Connectivity Post-Test</i>	.47	17	.50	
<i>Polarity Pre-Test</i>	.17	17	.29	.000*
<i>Polarity Post-Test</i>	.69	17	.30	
<i>Working Simple Circuit Pre-Test</i>	.11	17	.32	.000*
<i>Working Simple Circuit Post-Test</i>	.78	17	.43	

*= significant differences at the $p < .05$ level



Make-to-Learn:

Evaluating outcomes

What does success look like?

Production

- Creates inventive work/inspires creativity
- Wide range of production
- Sparks long-term interest

Practices

- Interest in documenting and sharing original work
- Connects youth to their home and academic lives
- Offers peer-to-peer learning cultures

Participation

- Youth get “hooked”
- Equal participation of non-dominant groups
- Creates youth leadership opportunities
- Evolves individual identities

How do we measure effective programs?

- Document and share the work produced through portfolios
- Evaluation & Assessment (Noam & Shah, 2013):
 - Need to articulate to choose and define core goals
 - Need for common assessments
 - Need to measure impact at multiple levels
 - Need to measure the impact of programs over long periods of time

What outcomes might we expect?

General Outcomes

- Engagement
- Interest
- Curiosity
- Creativity
- Design Thinking
- Systems Thinking
- Tinkering / Playful disposition
- Improved outlook
- Community Participation

Disciplinary Goals

- STEM interest, productive engagement, and valuing of STEM activities
- Arts interest, productive engagement, and valuing of Arts activities

Thank you!

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kpeppler.com





mozilla

HIVE

NEW YORK

EXPLORE + CREATE + SHARE



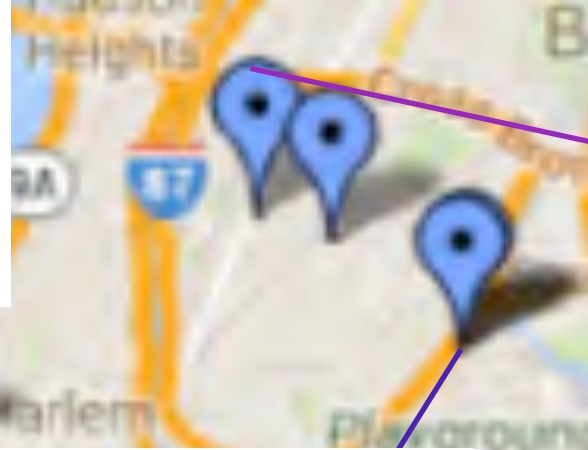
mozilla
HIVE
NEW YORK

A map of New York City and its surrounding areas, including parts of New Jersey and Connecticut. Several blue location pins are placed across the map, indicating specific points of interest. The pins are located in the northern part of the city (near Cross Bronx Expwy), in Harlem, in Manhattan (near Hell's Kitchen), in the Hudson River area (near Weehawken), and in the eastern part of the city (near Woodside). Major highways like I-95, I-287, I-278, I-295, I-495, and I-25A are visible.

A DAY
IN THE LIFE
MOZILLA HIVE NYC



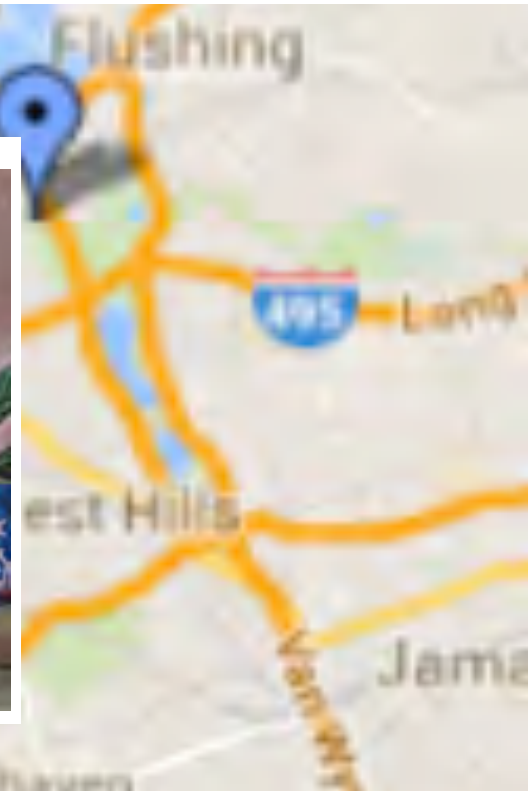
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NEW YORK



#art, #design, #media, #community, # QR
Codes, #public places, #oral history,
#economic justice, #activism, #youth
leadership

Bronx Museum
The People
Make the Park

THE POINT,
COMMUNITY
DEVELOPMENT
CORPORATION
POWER POINT





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NEW YORK

**#stemnow, #design,
#making #makerspace,
#digital fabrication,
#extinct, #dinosaurs,
#scientific inquiry**

New York Hall of Science Makerspace



American Museum of Natural History Capturing Dinosaurs



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HIVE
NEW YORK

**#electronics, #physical
computing, #remix,
#computational literacy,
#media, #gamedesign,
#makerparty**



**Eyebeam Art +
Technology & World Up
Digital Day Camp**

MAKER PARTY

June 15-September 15, 2013

**#teachtheweb, #make, #learn, #share, #remix,
#local, #regional, #global, #community-based,
mentor-lead, #blended, #digital literacy, #digital
skills, #makerparty**

Young Rewired State NYC

#hackjam, #open data,
#collaboration
#Museum of Moving
Image, #code,
#mentors, #design,
#peer-to-peer, #civic
engagement,
#makerparty



A promotional poster for the 'Come Out & Play Jam' event. The background shows a group of people playing a game with red balls on a grassy field. The text is overlaid on the image. At the top, 'Come Out & Play Jam' is written in large, bold letters, with 'Come Out & Play' in white and 'Jam' in red. Below this, a white box contains the event details: 'Design your own field game', 'Saturday June 15, 10 AM - 5 PM', and the location 'at the Park Slope Armory YMCA, 361 15th Street Brooklyn, NY'. Another white box lists the event's focus: 'Join us for an all-day event focused on making real-world games' and includes bullet points: 'Work in teams with professional game designers' and 'Playtest & present your game at the End-of-Day Jam Showcase'. A third white box mentions that the top two games will be showcased at the '2013 Come Out & Play Festival on Governors Island, July 13'. At the bottom, there is a URL 'Visit www.comeoutandplay.org/jam for more info' and four logos: 'COME OUT & PLAY FESTIVAL', 'DESIGN', 'the HIVE', and 'the Y'.

#field games, #professional game designers, #mentors, #problem-solving, #collaboration, #Come Out & Play Festival, #YMCA, #ESI Design, #makerparty



<http://webmaker.org/events>

#allied media conference, #Disco Tech, #Detroit, #social justice, #activism, #tech, #artivism, #choice, #makerparty

Made with Webmaker

Details

Remix

What I Made at the AMC2013 Maker Party DiscoTech

- My name is Charles, and I like to code.
- For this project, I used HTML5 and CSS3. But I also know JQuery.
- I taught myself to code at [Code Academy](#).
- I put this together at [AMC2013 DiscoTech Maker Party](#).

MAKER PARTY

Remix this!



<http://webmaker.org/party>

**#apps, #nerd,
#friends, #civic
engagement,
#teamwork,
#sharing
#celebrating,
#maker party**



#MozPhillippines, #girls-only, #kitchen table, #teachtheweb, #mentors, #html5, #global, #making, #maker party





EXPLORE + CREATE + SHARE

**#city-wide, #networked, #collaborative, #youth-focused,
#digital media, #webmaking, #connected, #learning lab,
#funded collaborations, #partnerships**

#leah gilliam, #mozilla, #hive nyc, #project director

webmaker.org, hivenyc.org @leahatplay @hivelearningnyc

Maker Education Initiative

EVERY CHILD A MAKER



Maker Corps

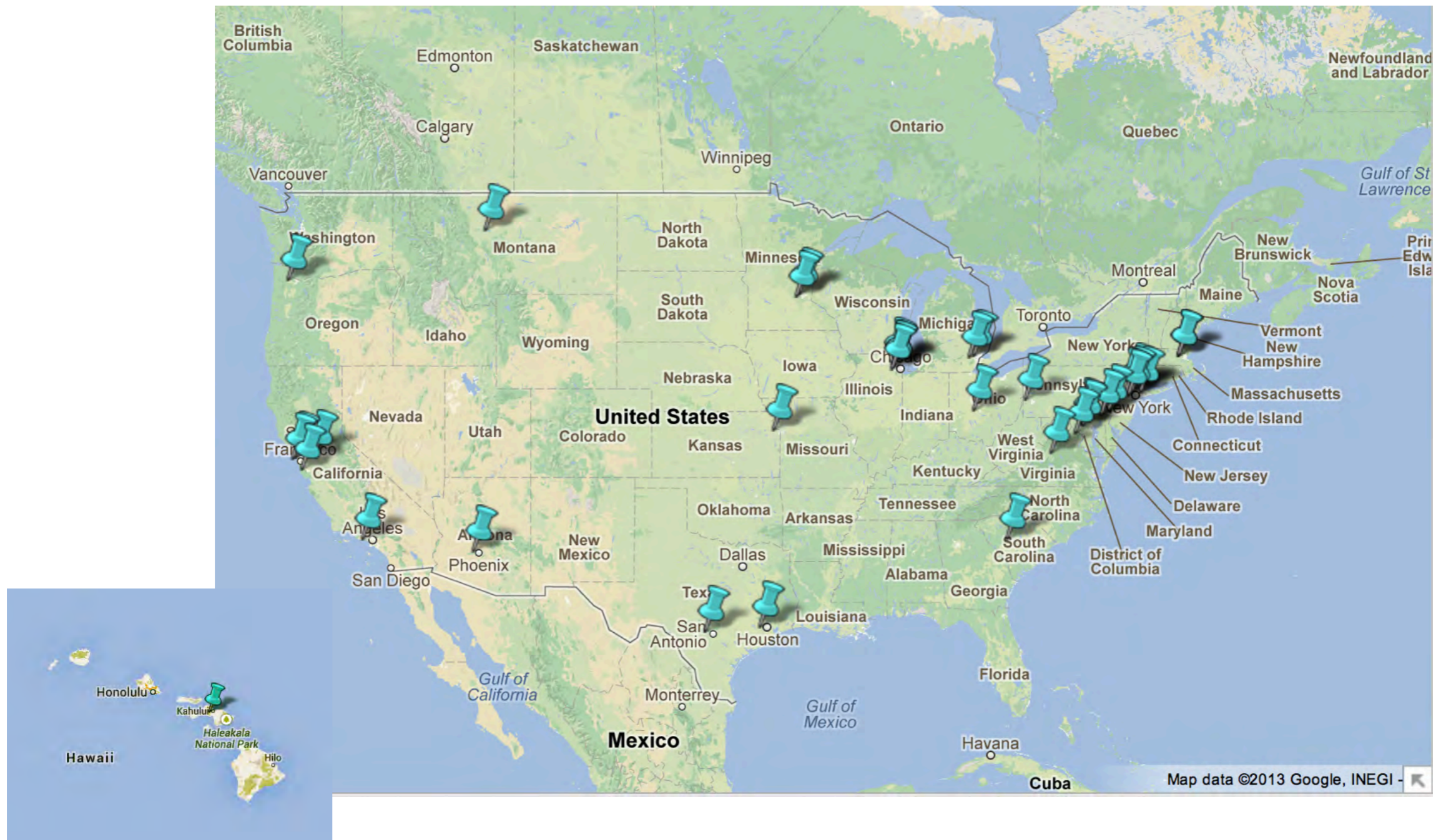
MAKER EDUCATION INITIATIVE

Lisa Regalla, Program Director
Lisa@MakerEd.org





19 States. 34 Host Sites. 108 Maker Corps Members



Maker Corps

PLAY & POSSIBILITIES

Maker Education Initiative

Maker Corps

WEEK 2 LANGUAGE & CREATIVITY

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WEEK 3

COLLABORATION

Ways of working with Children

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Maker Corps

WEEK 4



PROJECT Planning

Maker Education Initiative

PossibilityBOX

PROJECT WEEK 1

Squishy Circuits

Maker Education Initiative

Maker Corps



WEEK 2 MAKE STUFF

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WEEK 3



ARTBOTS

MAKE SOMETHING THAT MAKES ART

Maker Education Initiative

Maker Corps

WEEK 4



ARTBOTS

Introduce your project to someone new
How would you plan for introducing your artbot project variations at your Host Site?

Maker Education Initiative

Maker Corps TOPICS: WEEK 5



TOOLS Materials

Maker Education Initiative

Maker Corps TOPICS: WEEK 6



Reflection Documentation



Maker Corps TOPICS: WEEK 7

Every Child a Maker

Every Child a Maker Inclusiveness & Access



Maker Education Initiative

TOPICS: WEEK 8

Makers+ Maker Corps COMMUNITIES & CONNECTIONS



Maker Education Initiative

PossibilityBOX PROJECT: WEEK 5



MaKey MaKey SCRATCH

Maker Education Initiative

PossibilityBOX PROJECT: WEEK 6



eTextiles

PossibilityBOX PROJECTS: WEEK 7



Freely Developed PROJECTS

Maker Education Initiative

PossibilityBOX PROJECTS: WEEK 8



Freely Developed PROJECTS

Maker Education Initiative

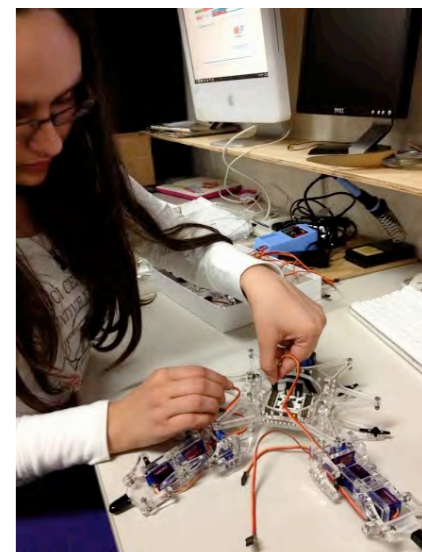
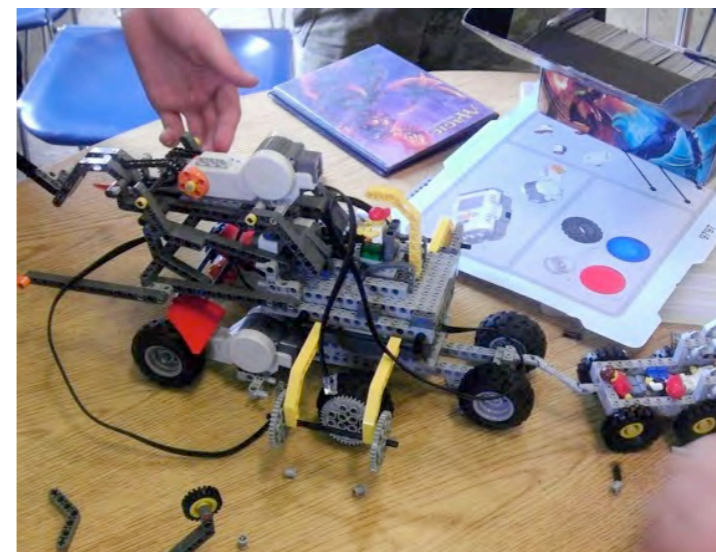
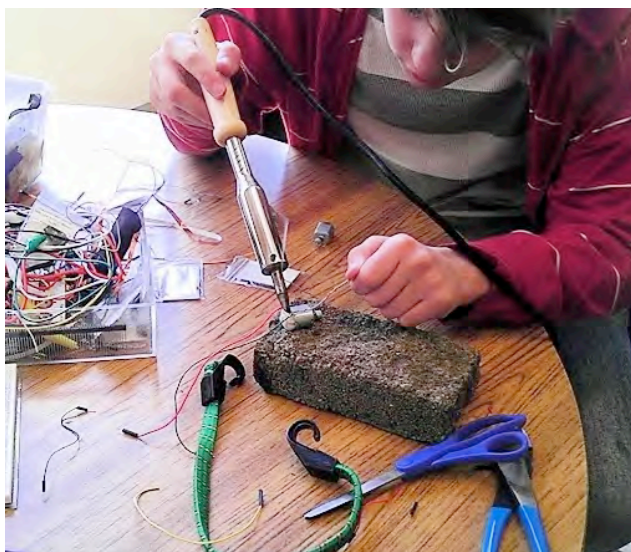
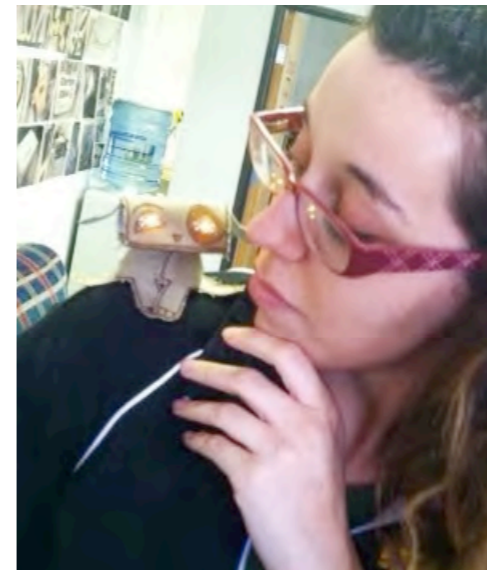
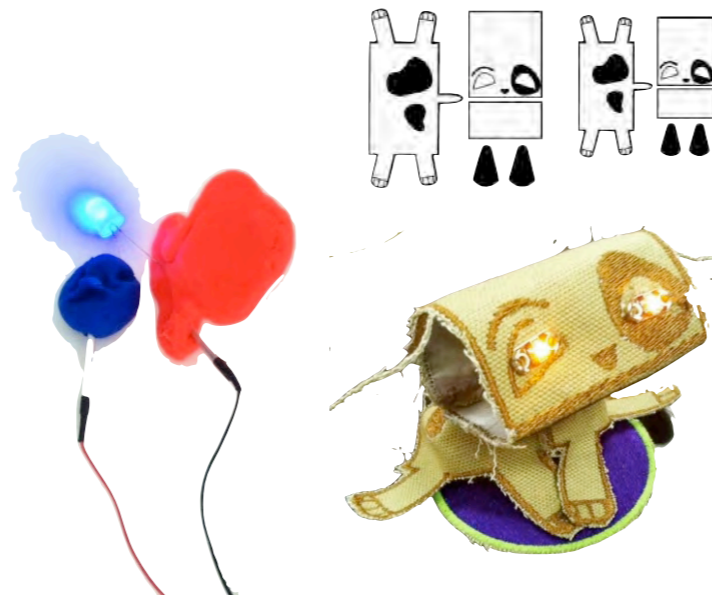
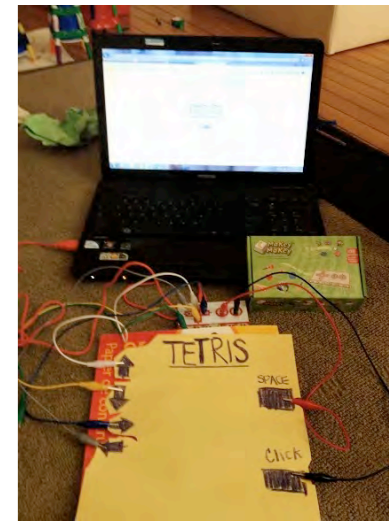
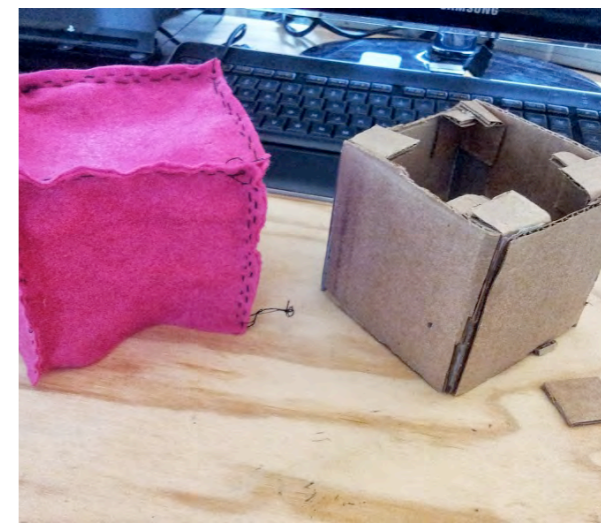
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Maker Corps

PossibilityBOX







COMMUNITY



- Home
- Profile
- Explore
- Photos
- Communities
- Events
- Find people
- Local
- More

Maker Corps
Spring/Summer 2013



175 members Private

- Actions On
- All posts
 - Our Community
 - Introduce Yourself!
 - Staff Announcements
 - Questions???
 - Portfolio Ideas
 - 1. Squishy Circuits Resources
 - 1. Squishy Circuits Responses
 - 2. Make Stuff! Resources
 - 2. Make Stuff! Responses

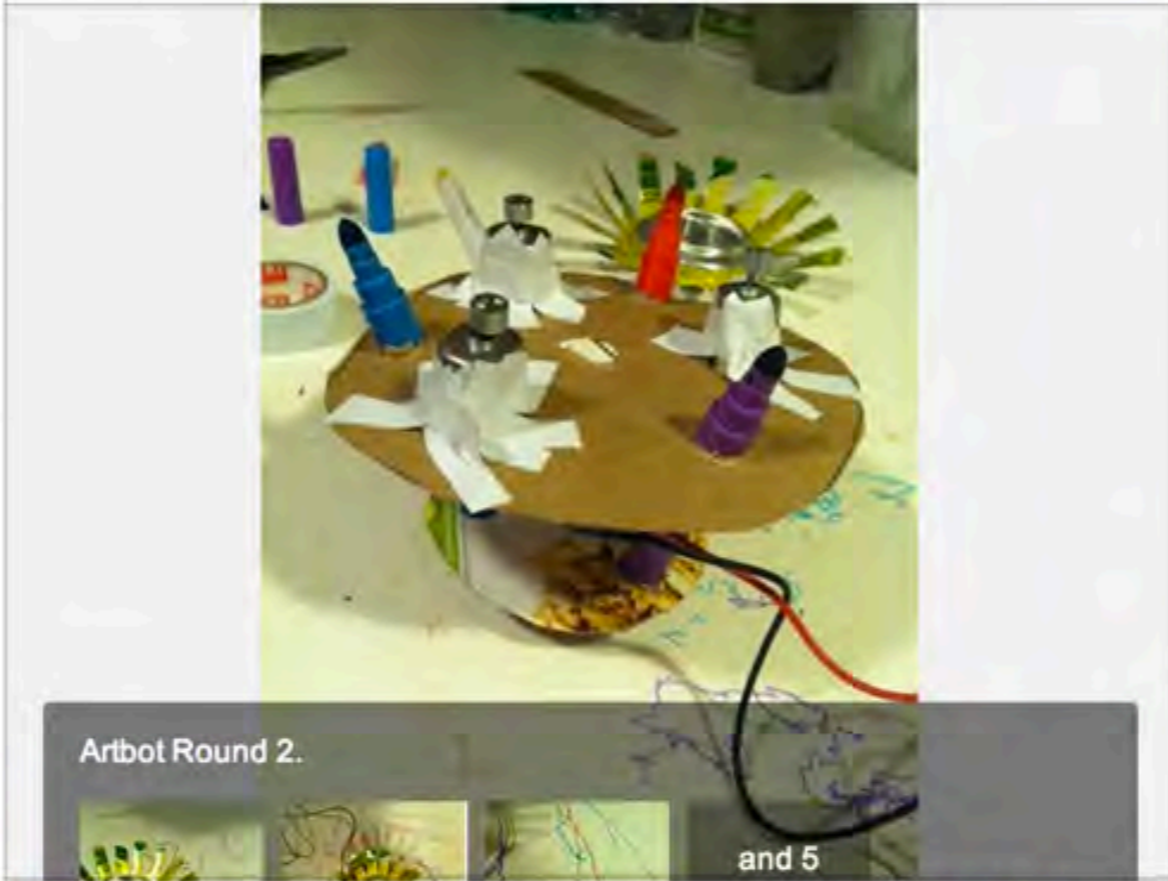


Share with this community



Lindsay Balfour May 8, 2013 (edited) - 3-4. Artbot Responses -

Version 3: Now has 3 motors. Adjusted it's "skirt" and made significant difference in the line type (Dithering or solid). Much better circles and on a larger scale. Still acting strange, but I certainly liked the major changes. Thanks for the late night suggestion John Desaulos! Probably was an obvious solution, but it went right over my head and I appreciate you letting me know.



+1




+3


175 MEMBERS

Invite people

All (175)



Moderators (4)



Maker Education Initiative Every Child a Maker

HANGOUTS

Start a new hangout

UPCOMING EVENTS

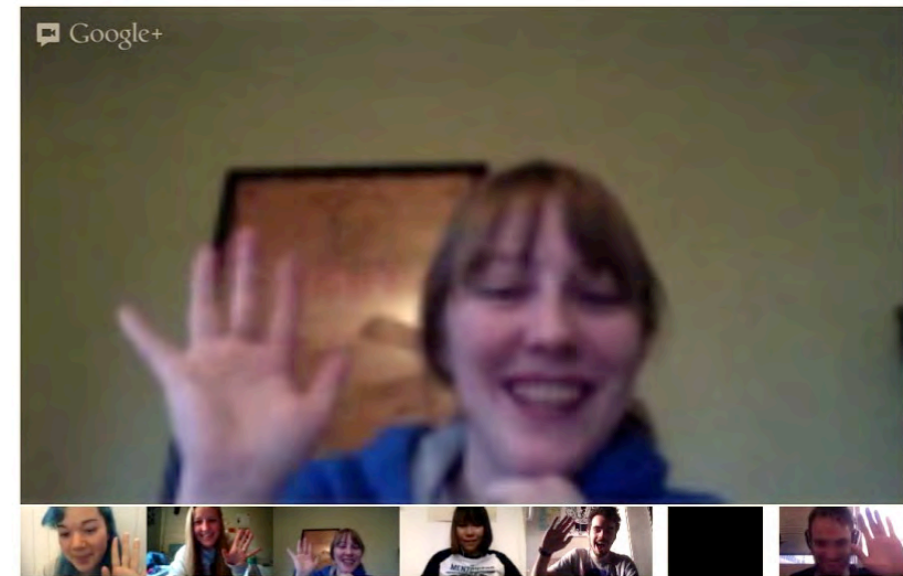
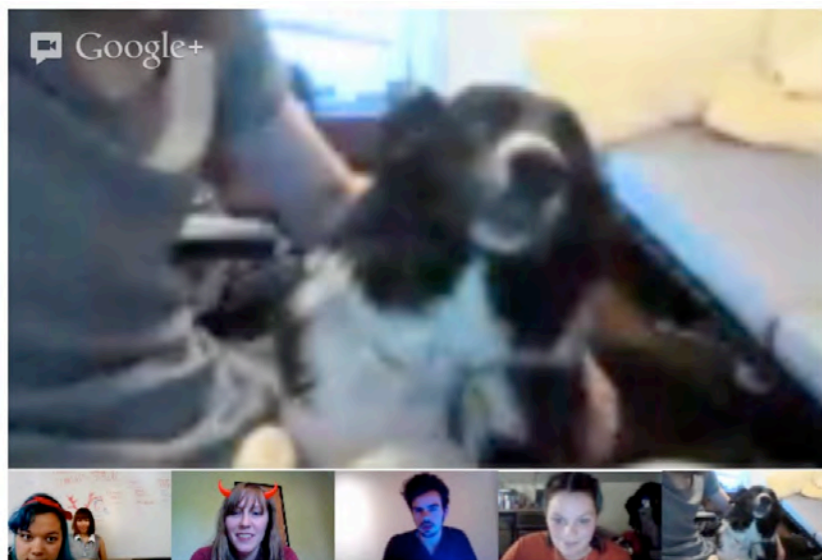
- How to Design a M... Tue, May 14, 2:00 PM ...
- Maker Ed's First An... Thu, May 16, 1:00 PM ...

Maker Corps

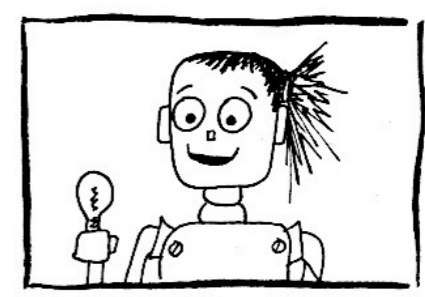
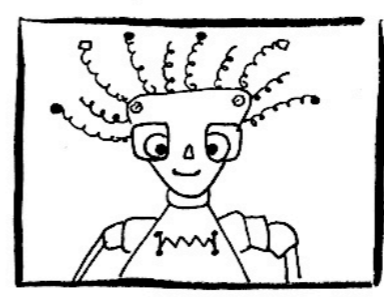
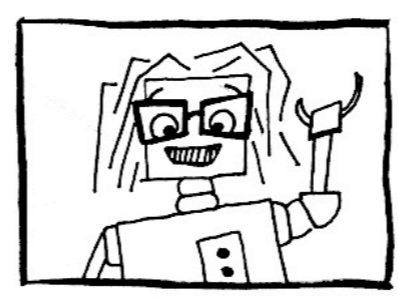
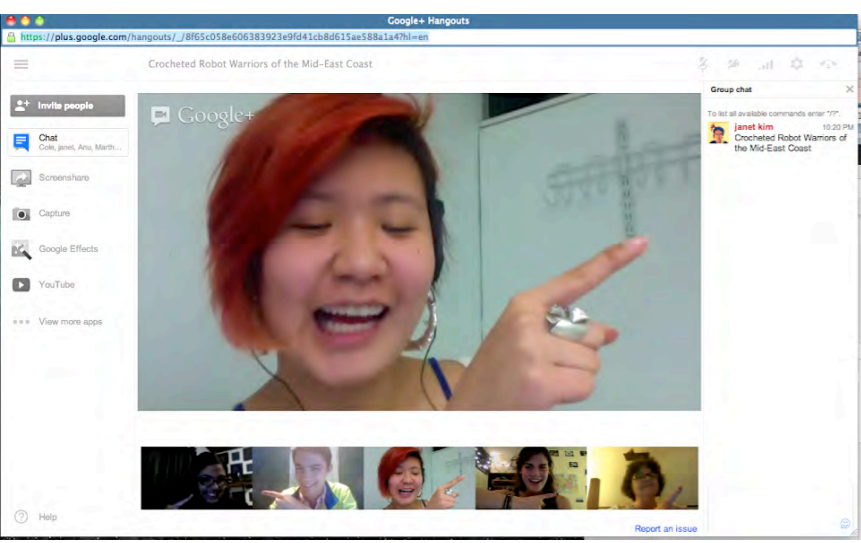

MAKER EDUCATION INITIATIVE

COHORT REPORT

Maker Education Initiative

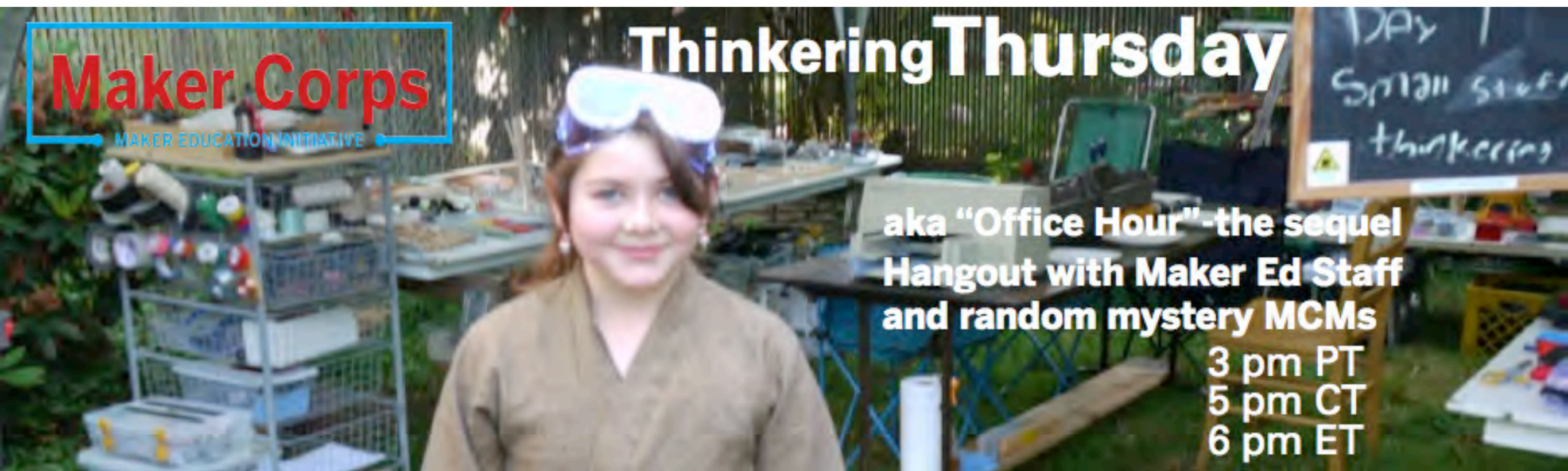


Engin8tors
week 6





Maker Corps Monday



Maker Corps
MAKER EDUCATION INITIATIVE

Thinkering Thursday

aka "Office Hour"-the sequel
Hangout with Maker Ed Staff
and random mystery MCMs

3 pm PT
5 pm CT
6 pm ET



Maker Corps

MAKER EDUCATION INITIATIVE

**Interested in becoming a
2014 Host Site? Sign up at:
MakerEd.org/MakerCorps**

@MakerEdOrg

[Facebook.com/MakerEducationInitiative](https://www.facebook.com/MakerEducationInitiative)





youngmakers.org

Make:

makezine.com/maker-camp



makerspace.com/playbook



Ready for more?

