

Maker Education Initiative

EVERY CHILD A MAKER



Program Report 2012-13

Special thanks to our founding sponsors:



Pixar Animation Studios

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From the Executive Director

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Dear Friends,

August 30, 2013

The experience of making works for both youth and educators and is rooted in the belief that making things with your hands, gradually blending materials and connecting the physical to the digital world – driven by student interest—can serve as a catalyst for increased individual and community prosperity. Collaborating with people and organizations to make things is not just good teaching, it is good learning, and we are witnessing its impact in both formal and informal environments.

This year, thousands of youth from diverse communities experienced making activities for the first time. The launch of our flagship program, Maker Corps, vastly exceeded its first year goals by securing 34 host site partners across 19 states. The program made a lasting impression in the lives of more than 27,000 young people and is impacting the making opportunities offered by the staff in our partner host sites. Beyond providing eight months of training and support, Maker Corps cultivated a national community, or “family” as some of the participants called it, for Maker Corps Members. In one of our Development Camp hangouts on Google+, one member exuberantly shared: “One of the most powerful parts of this experience thus far has been the community... talk about a collective brain! ...After every cohort meeting, after every Meetup... I’m just giddy with excitement, to get started, and to get going!”

This year we had the great fortune to adopt the Young Makers program, almost entirely volunteer run, as it expanded to three new sites in the Bay Area and featured more than 245 youth at the Bay Area Maker Faire alone. Building the infrastructure to support Young Makers and take new programs to scale is no small task. Forging a national leadership role on the shoulders of giants already engaged in the Maker Movement before us is an even taller order. Yet we continue to rise to that challenge with enthusiasm and gusto.

This report is a wonderful reflection on the collection of work and achievements made possible by our outstanding team of staff and partners in the national maker network. To all those who supported Maker Ed this year, thank you for helping us transform education and change the personal outlook of children engaged in making experiences.

Warmly,



Paloma Garcia-Lopez

Executive Director, Maker Ed

Background

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History

In 2012, the Maker Education Initiative (Maker Ed) was founded by Dale Dougherty, leader of the Maker Movement, CEO of Maker Media, and founder of Make Magazine and Maker Faire. Maker Ed was formed in response to President Obama's Educate to Innovate campaign to move American students from the middle to the top of the pack in science and math achievement over the next decade. The purpose of Maker Ed is to bring maker-oriented experiences to scale in multiple learning environments and communities across the nation. Maker Ed plays a national leadership role in developing a maker network of institutions, youth serving organizations, statewide afterschool networks, corporations, foundations, and makers seeking to accelerate and deepen the Maker Movement. Maker Ed was founded by generous multi-year support from Maker Media, Cognizant, Intel, and Pixar Animation Studios.

Mission

The mission of the Maker Education Initiative is to create more opportunities for young people to develop confidence, creativity, and interest in science, technology, engineering, math, art, and learning as a whole through making.

Goals

1. Young people from all communities have access to rich opportunities to make.
2. Educators and providers have the resources and support to facilitate making.
3. Communities are empowered to be leaders and advocates of making for young people.



World Maker Faire 2012



Portland, OR Mini Maker Faire 2012



Bay Area Maker Faire 2013

Summary

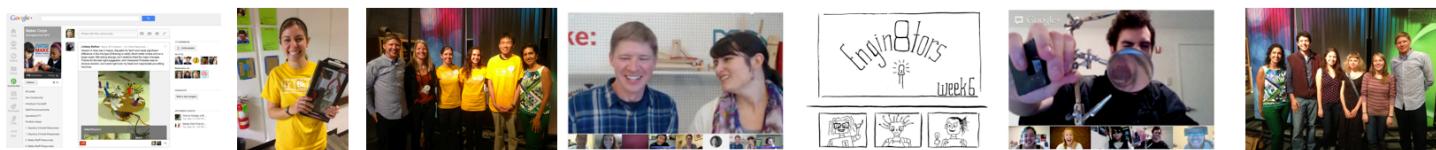
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To create more opportunities for young people to make, Maker Ed provided the following programs and services between summer 2012 and summer 2013:

Maker Corps

MAKER EDUCATION INITIATIVE

Maker Ed recruited and trained 108 makers to engage children in creative projects through partnerships with science centers, libraries, summer camp providers, and other youth serving agencies. These partnerships include paid summer opportunities to our Maker Corps Members. In Maker Ed's inaugural summer, Corps Members worked at 34 Host Sites and served more than 90,000 youth and families.



Young Makers

Maker Ed adopted the Young Makers program from Maker Media in 2012. This program implements a community and school based club model connected to adult mentors in the making community. More than 245 youth developed projects over a five month period for exhibition at Bay Area Maker Faire. Young Makers expanded a three year partnership with the Exploratorium to include the Lawrence Hall of Science, Tech Museum of Innovation, and Bay School.



Every Child a Maker

MAKER EDUCATION INITIATIVE

Maker Ed provides training, outreach, and support to realize our vision of "Every Child a Maker." Maker Ed provided professional development featuring hands-on explorations, and presented at over 100 conferences, symposiums, and webinars. Maker Ed staff moderated panels, curated Education Cafes at Maker Faires, and participated in teacher meetups. Supporting organizations through 16 Maker Micro Grants, ongoing collaboration, and consultations has further strengthened Maker Ed's network and friendships.



Establishing our Flagship Program

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Maker Ed announced its commitment to train 1000 Maker Corps Members, across 50 states, by 2015 at the second annual Clinton Global Initiative America.



Over the next three years, Maker Ed projected 10,000, 30,000, and 50,000 youth would be engaged in first time making experiences. Thus far, our flagship program has surpassed its initial targets. Maker Ed established partnerships with 34 Host Sites, exceeding the goal of 20 Sites in year one. Data show Corps Members served over 90,000 youth and families across 19 states in summer 2013.

To build Maker Corps, Maker Ed engaged our Host Sites by allowing for broad input and participation in all aspects of the program, including:

- Design of the placement, role, and responsibilities for each Corps Member
- Involvement in the recruitment and selection process
- Participation in the Development Camp, webinars and Google+ Communities

In addition, Maker Ed provided 15 Maker Micro Grants to support Host Sites who otherwise would not be able to participate in the program. Six of these Micro Grants were made possible by the generous support of Cognizant (Chicago Children's Museum, Children's Museum of Pittsburgh, Exploratorium, Mt. Elliott Makerspace, Newark Museum, and New York Hall of Science). The infrastructure and execution of Maker Corps was made possible by the generous support of Google for Entrepreneurs.

Partners: Host Sites

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19 States. 34 Host Sites. 108 Corps Members.



Public Schools

Albemarle County Public Schools

Charlottesville, VA

The DaVinci Center for Innovative Learning
Stockton, CA

Mamaroneck Union Free School District
Mamaroneck, NY

Girl Scouts

Girl Scouts of Central Maryland
Baltimore, MD

Girl Scouts of Greater Chicago & NW Indiana
Chicago, IL

Girl Scouts of Chesapeake Bay
Wilmington, DE

Girl Scouts of Suffolk County
Commack, NY

Educational Non-Profits

The Exploratory

Los Angeles, CA

Digital Harbor Foundation

Baltimore, MD

Hive NYC Learning Network

New York, NY

Universities

Arizona State University College of Tech & Innovation

Tempe, AZ

MIT Edgerton Center/ Museum of Science Boston, MA

Libraries

Evanston Public Library

Evanston, IL

Free Library of Philadelphia

Philadelphia, PA

Great Falls Public Library

Great Fall, MT

Makerspaces

Maui Makers Kahului, HI

Mt. Elliott Makerspace

Detroit, MI

LevelUp Teen Makerspace

Chicago, IL

San Antonio Makerspace

San Antonio TX

Museums

Center of Science and Industry, Columbus, OH

Chicago Children's Museum

Chicago, IL

Exploratorium

San Francisco, CA

Children's Museum of Pittsburgh
Pittsburgh, PA

Lawrence Hall of Science
Berkeley, CA

EdVenture Children's Museum
Columbia, SC

Newark Museum

Newark, NJ

New York Hall of Science
New York, NY

Oregon Museum of Science and Industry Portland, OR

Children's Museum of Houston
Houston, TX

Science Museum of Minnesota
St. Paul, MN

Science City at Union Station
Kansas City, MO

The Henry Ford Museum

Ann Arbor, MI

The Tech Museum of Innovation
San Jose, CA

The Works Bloomington, MN

Timeline

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Summer and Fall 2012

Initial program planning, partnership formations, and fundraising

Established 34 Host Sites located throughout the United States, greatly surpassing the original goal to recruit 20 sites in the first year

Winter 2012-2013

Recruited Maker Corps Members

Planned and developed training materials

Created and shipped 155 Possibility Boxes

Established Google+ Corps Member and Host Site Communities

Spring 2013

Eight week Spring Development Camp, April 3 to May 22

Corps Member Cohort meetings & informal hangouts

Host Site Working Group established with regular meetings

Summer 2013

Maker Corps Member Host Site 8-12 week placements

Ongoing evaluation and documentation

Four Summer Development Camp Meetups

Further community development via establishing “Sister City Cohorts” comprised of grouped Host Sites

Advancement to Maker Corps Mentor Status after service

Are you a young adult? A maker? Seeking summer employment, and a chance to be a pioneer in maker education and leadership?

ANNOUNCING:

Maker Corps

BE A PART OF THE FIRST TEAM



HELP MAKING HAPPEN



Apply today! MakerEd.org/MakerCorps

Maker Education Initiative



Maker Corps

Some desired take-aways:

- The importance of taking time to think about what you're doing, and what you've done, and why
- Establishing ways and habits of sharing your thinking and project work
- Understand the importance of capturing the entire making process, not just the final product
- Finding ways to make learning visible

Maker Education Initiative



"Doing the projects were the most valuable because I was able to have a hands-on experience with making things and showing them off."



Development Camps

Our Spring Development Camp was geared to inspire thinking about ways to best work with children. For eight weeks we explored projects and methods to provide the best possible making experiences.



Spring Development Camp Topics and Projects



Development Camp Meetups

PossibilityBOX

"I loved having broad project goals. It was great to have a starting point, but the projects every week allowed a lot of freedom to express ourselves and experiment."

—Corps Member, post-camp survey

To allow the kind of exploration and inspiration that only hands-on experiences can provide, Maker Ed provided Corps Members and Host Site staff with a “Possibility Box.” The tools and materials in the Possibility Box provoked creativity and encouraged play in many areas of making, including sewing, art, electronics, mechanics, crafts, and programming.



Corps Members developed many entirely new projects and countless variations on traditional maker projects.

"Seeing everyone else's ideas and creativity was infectious. It was really valuable to see what other shared and it motivated me and made me excited to get making!"

Community

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"I really enjoyed being connected to fellow makers. It was nice to see that there are a lot of us out there in the world!"

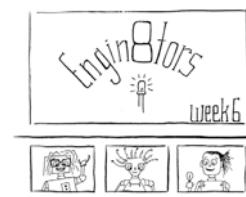
The development of a strong Maker Corps community involved:

- Establishing a Google+ Community with thriving and dynamic conversations, videos, and pictures
- Fostering small support cohorts of 4-6 members with weekly projects to share with each other
- Featuring creations made with Possibility Box tools & materials, provoking new designs and ideas
- Developing Camp questions leading to deeper discussions beyond the camp meetings
- Setting up instructor's office hours, coined "Maker Mondays" and "Thinkering Thursdays"
- Connecting "Sister City" cohorts to explore both institutional and individual interests

Maker Corps online communities led to an incredible amount of collaboration, camaraderie, and lasting friendships among site staff and corps members involved in the program. After their summer of service, Corps Members have now advanced to become Corps Mentors. In this role, Mentors continue to be active in supporting Maker Corps, and in fostering making in their communities.



"Meeting with my cohort group was extremely valuable. Not only did I get new ideas as to completing certain projects or make them better, but simply the interaction with people who are assigned to the same project kept things fresh, new and exciting."



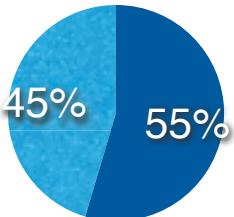
"The community was very important to me. It was a place where someone could be super excited about a seemingly tiny accomplishment and the excitement was appreciated. The sharing of great ideas was also unbelievably important."

"Before Maker Corps, I used to think of myself as an artist and a computer scientist, but as two separate parts about me. Now I realize I'm a "maker" where both parts are one. I'm going to carry this identity back to Carnegie Mellon this fall"

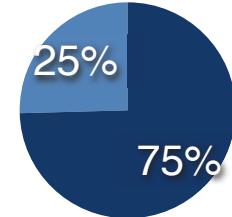
Demographics and Evaluation

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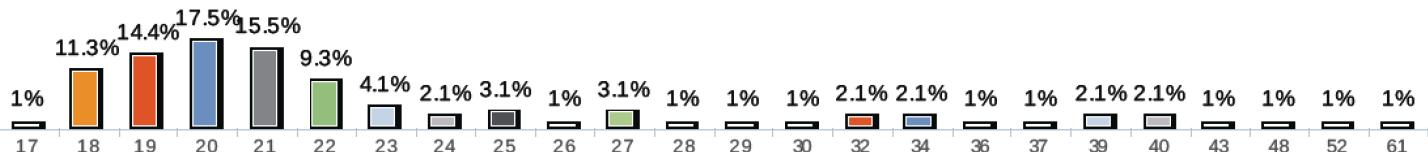
Maker Ed partnered with the Science Museum of Minnesota to conduct a formative evaluation of the Maker Corps Program.



Corps Member Gender Demographics



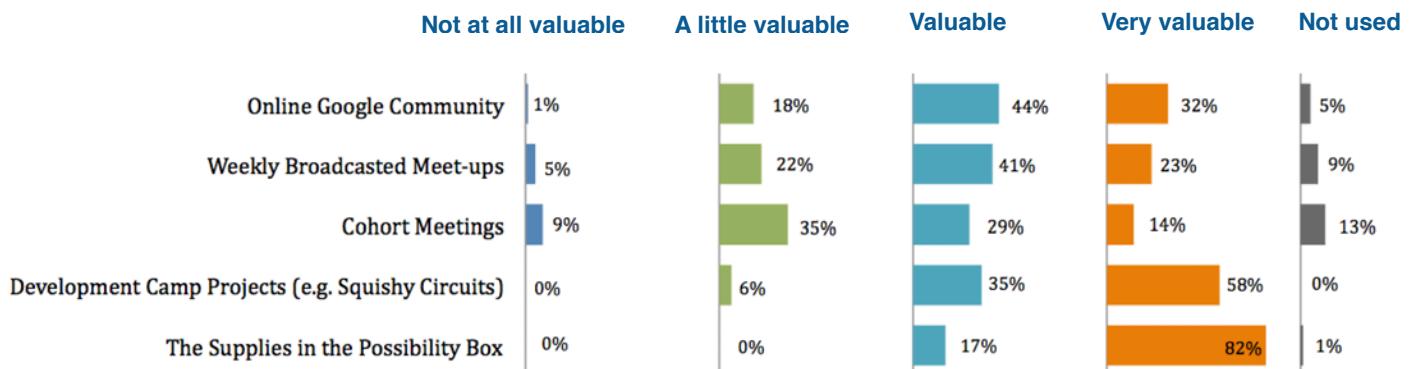
Corps Member Student Status Spring 2013



Maker Corps Member Age Demographics

Corps Members valued the online Google+ community, Development Camps Meetups and projects, and the Possibility Box contents the most. These are the pillars of the program.

How valuable, if at all, was each part of the development camp to you?



Becoming a Maker Corps Member was the best decision of my life!

—Lindsay Balfour, The Tech Museum of Innovation

Testimonials

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***Our children have never had a bigger growth month.
Our teachers have never been more excited.***

—Ira Socol, Design Project Manager, Albermarle County Public Schools

I am an elementary teacher by trade and there are many things that I plan on doing differently in my classroom.

—Mary Foulke, Maker Corps Member, The Henry Ford

Maker Corps could not have chosen two better suited interns for collaboration. Both are highly dedicated young adults who are passionate about their chosen subject. Countless times during the course of the month, I have received coaching from them on the programs we were using. It is certainly a testament to the extreme dedication these two Maker Corps Members have shown; because of their attention to my questions and struggles, my knowledge and understanding increased.

— Michelle Burton, Teacher at Mamaroneck's Hommocks Middle School

I loved the energy of the development camp. Everyone posted their work and ideas, and it was great to see how excited everyone was about what they were making. It was great feeling like I was getting to know people just by participating in the Google Community.

—Corps Member, post- camp survey

The most valuable part of the training for me was the contagious excitement about making that was built from the google+ community, cohort meetings and weekly Lisa/Steve meetups. It was great to feel so supported and encouraged as I was exploring and making!

—Corps Member, post- camp survey

This program has been, and continues to be, such an amazing experience for all of us.

—Chris Hemmler, The Henry Ford Museum, Supervisor

Overview

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Young Makers is a volunteer-run program that Maker Ed adopted from Maker Media in 2012. The program connects young people, typically ages 12-18, with adult mentors and fabricators in a club setting to create opportunities to dream up and develop projects for exhibition at a signature event each year. These clubs can be run out of someone's home or garage, afterschool centers, churches, or classrooms.

This program encourages young people to develop projects based on their own interests and ideas. Past projects have included a pedal-powered trolley, furniture that doubles as a hamster habitat, a firebreathing dragon, a seesaw water pump, an animatronic galloping horse, and a mobile spy camera. Clubs work together to create a collaborative culture of creativity, innovation, and experimentation. In the Young Makers program, there are no winners and losers; the focus is on exhibition, not competition, and anything that's cool is fair game.

SF Bay Area

The Young Makers program started in the Bay Area and has the largest presence there. Each Bay Area club consists of 6-10 Young Makers, an adult who is responsible for organizing the activities of the club (Club Managers), one or more project Mentors, and finally a person who has access to and knowledge of a fabrication facility (Shop Hosts). Regional Coordinators are responsible for supporting the clubs in their region, leading recruiting activities, communicating with all the participants in the region, organizing the monthly meetings, coordinating with the staff of the Hub, as well as, being responsible for the logistics associated with having approximately 100 projects exhibited over the course of Maker Faire.



Each club meets as often as necessary to complete projects in time for exhibition at the Bay Area Maker Faire in May. Young Makers members have the opportunity to meet at a science rich educational institution once a month, for four months, leading up to the local Maker Faire. This year, Lawrence Hall of Science, The Tech Museum of Innovation, and the Bay School partnered with Maker Ed to host these Open Make events. Open Make events consist of plussing sessions for Young Makers to share their projects with each other and gain feedback, tinkering activities for hundreds of family

members and the general public, as well as, conversations with featured makers in front of an audience. This panel is known as "Meet the Makers," and is centered around a theme that runs through the presentations, exhibits, and workshops on the museum floor. For the past three years, the Exploratorium has worked with Young Makers volunteers to curate, execute, and refine Open Make for our new partners to implement.

Growing Young Makers

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The Young Makers program was piloted in 2010 with 18 youth in San Francisco. Four years later, there are 1,130 subscribers, 71 clubs worldwide, and more than 300 youth who participated in the Bay Area clubs in 2013. One Young Maker, 11 year old 'Super Awesome Sylvia,' presented the WaterColor Bot, a drawing robot that paints with watercolors, at the White House Science Fair in April 2013. More than 245 youth exhibited their projects at the Bay Area Maker Faire in May 2013.



Super Awesome Sylvia, Paloma Garcia-Lopez and President Obama at the White House Science Fair

In order to support the growth of the Young Makers clubs in the Bay Area in 2013, Maker Ed presented a \$3,000 Maker Micro Grant to first time Open Make participant the Lawrence Hall of Science to help fund their 2013 work with Young Makers.



Young Makers Plussing Session at the Lawrence Hall of Science



Developing an Exhibit

Training, Professional Development, and Support 13

Maker Ed has provided a wide variety of workshops, webinars, and teacher/educator training, both in-person and online. Hands-on experience is a hallmark of the training for educators. Via webinar participation, Maker ED advocates and informs while supporting the work of organizations that have mutual mission goals. Shared below are a few highlights:

EdVenture Children's Museum

Maker Ed provided four sessions, over two separate visits, of professional development, training, and hands-on explorations for museum staff and local teachers and educators in Columbia, South Carolina.



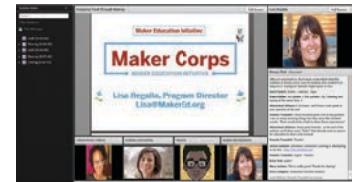
Girl Scouts

Maker Ed provided on-site professional development, hands-on workshops, and training for national leaders and four Girl Scout Maker Corps Host Sites.



Afterschool Alliance Webinars

Maker Ed staff introduced the Maker Movement, Maker Ed, and Maker Corps to a national audience of afterschool educators during several webinars



Making for Educators Webinars

Four sessions of outreach to California educators for a training program modeled after our Maker Corps approaches run by the non-profit Exploratory, a Maker Corps Host Site in Los Angeles, CA.



MESA Days: Inventing With Paper & Light Workshop

A one day workshop for MESA staff, middle, and high school students with an open-ended invitation to play and make.



Conferences, Outreach, and Grants

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Totals For All Staff

33 Presentations given

Highlights: Make-to-Learn Symposium, Santa Cruz Hacker's Conference, Maker Bridge, Bay Area and World Maker Faires, California Department of Education, Massachusetts Institute of Technology Media Lab, Institute for Museum and Library Studies, White House Conference Center

30+ National symposiums and conferences attended

Highlights: Reimagining Education, STEM Badges Conference, Digital Media and Learning Conference, Opal School Summer Symposium, Community Learning Centers Summer Institute, ReMaking Education, Clinton Global Initiative America, White House Science Fair, National Afterschool Association

28 Webinars given

Highlights: Afterschool Alliance, Making for Educators, Maker Corps Development Camps, Maker Media's Maker Camp, Google Science Faire

16 Grants given Supporting Maker Corps and Young Makers

Highlights: Host Sites receiving Maker Micro Grants in addition to those funded by Cognizant: Arizona State University, Center of Science and Industry, Digital Harbor Foundation, San Antonio Makerspace, Free Library of Philadelphia, Great Falls Public Library, Henry Ford Museum, Science City at Union Station, Science Museum of Minnesota

12 Panels and working groups

Highlights: Fab Lab Foundation Digital Fabrication Professional Development Design Studio, Clinton Global Initiative Making Conference, National Portfolio Group for Re-Imagining Education, Bay Area and World Maker Faires, Afterschool Networks National Network Meeting

9 Hands-on workshops

Highlights: Edventure Children's Museum staff and local educators, Girl Scouts of America, MESA , Pittsburgh Children's Museum MAKESHOP

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Maker Ed is grateful for the following contributions:

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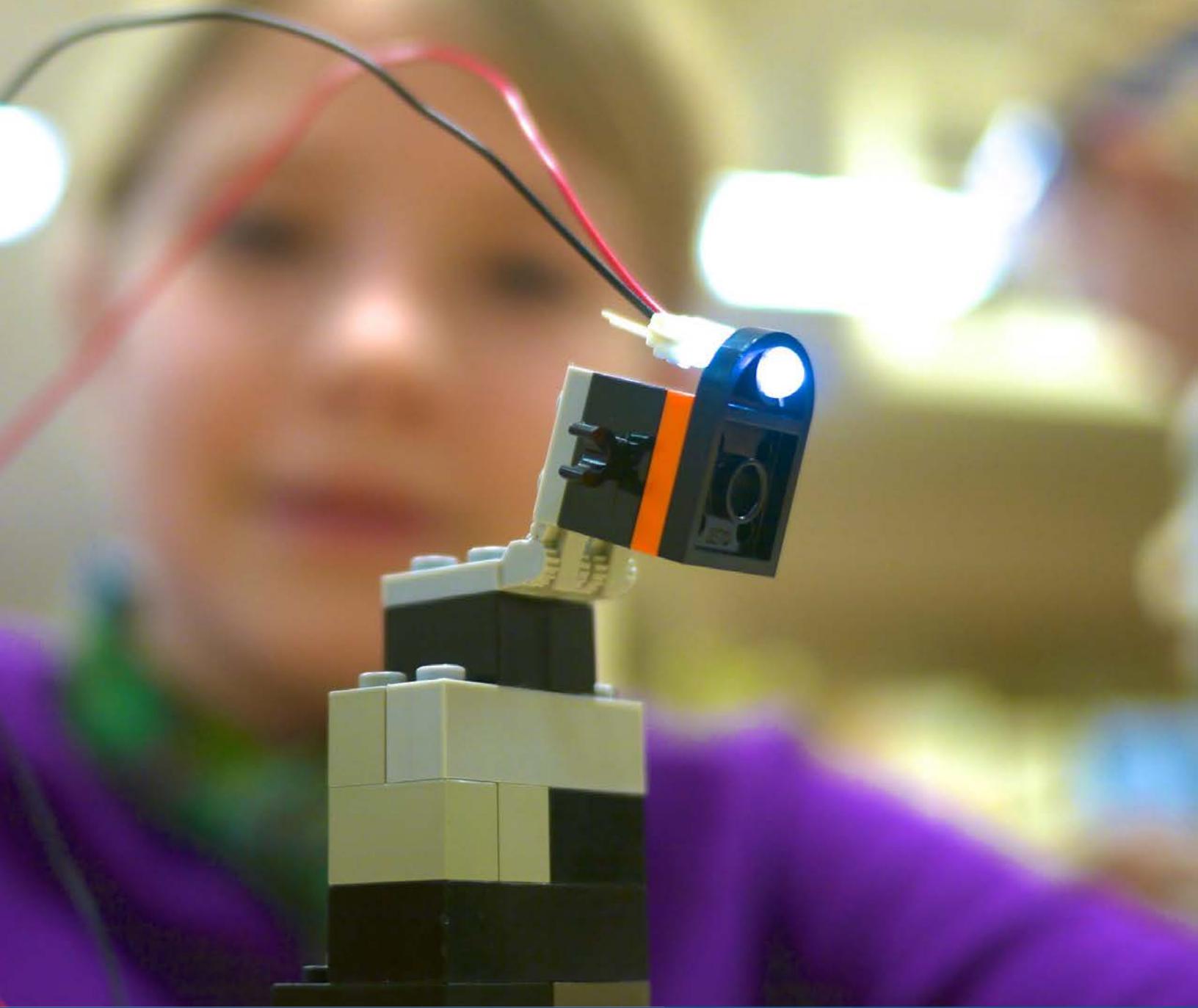
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Founding Maker Ed Board and staff, from right to left: Board Chair Dale Dougherty, Executive Director Paloma Garcia-Lopez, Tony DeRose, founding Executive Director AnnMarie Thomas, Jane Werner, Mark Greenlaw, Carlos Contreras.

Maker Education Initiative

EVERY CHILD A MAKER



Board of Advisors

Dale Dougherty (Chair)
Carlos Contreras
Tony DeRose
Mark Greenlaw
Jane Werner

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