

Maker Home Make-Over

What is iQ: smartparent?

iQ: smartparent is an Emmy-winning multimedia television and web series designed for parents that will empower them with new knowledge, tools, and abilities to successfully guide their children through the changing landscape of digital media and technology. It's a growing community of caregivers, national experts, educators, and parent bloggers who want to understand the opportunities and challenges of media as it relates to the development of their children. **iQ: smartparent** was created by WQED Multimedia in 2012.

About this Episode

The only thing “extreme” about this home makeover is that the results will be extremely fun for your kids! Most parents provide a basket of arts and crafts supplies to keep kids busy on rainy days but in this episode of iQSP, we reveal exciting projects inspired by the Maker Movement to transform every room in your house. From the family room to the kitchen, the back-yard patio to the family’s computer workspace, discover projects to entertain kids and help them build the science, technology, engineering, art & design, and math (STEAM) skills needed for 21st century success.

Discussion Questions

1. We talk a lot about being a “maker” here on iQ Smart Parent. Why do you think it is important to be a maker?
2. Whether you saw it on Facebook or YouTube, what are some DIY hacks you’ve learned which could be considered “maker” hacks?
3. Having a maker space doesn’t have to break the bank. Where can you go to ask for reusable or used materials for your maker space?
4. Being a maker isn’t a 21st century invention. How have you and your child’s grandparents showcased maker skills in the past and today?
5. How are you modeling maker habits and behavior for your children? How can you get started?
6. What was the last maker project you did with your children?
7. Our guest, Kipp Bradford, said that the exploring the creative process was important to the maker movement. What does this mean to you? How can your family explore the creative process?

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About the Guests



Kipp Bradford is a Research Scientist at the MIT Media Lab. His work focuses on reinventing thermal systems. He also explores innovation, manufacturing, and programming languages. His background spans biomechanical and electrical engineering, design, entrepreneurship, and HVAC+R. He is a founder of start-ups in the fields of HVAC+R, transportation, consumer products, and medical devices, and holds numerous patents for his inventions. Some of his more interesting projects have turned into kippkits. Kipp was an honored guest at the first-ever White House Maker Faire, and serves on the board of The Nation Of Makers which he helped the White House launch in 2016. He is the author of *Distributed Network Data* (hardware hacking for Data Scientists, with Alasdair Allan) and contributed a chapter to *Building Open Source Hardware*. He is one of the cofounders of the Data Sensing Lab; an advisor to Highway1 (a leading hardware start-up accelerator); and founded the Innovation Institute, an NSF-funded project that teaches innovation to underserved youth in New York City. Kipp also co-founded Revolution By Design, a non-profit education and research organization dedicated to empowerment through technology. He founded and co-organizes the first-ever community-run Maker Faire, what is now the Rhode Island Mini Maker Faire, and founded the Washington, DC Mini Maker Faire, which is now the National Maker Faire. He is one of the USA Science and Engineering Festival's "Nifty Fifty." Kipp was the Demo Chair of the 2013 Open Hardware Summit, was on the program committee and a keynote speaker for the O'Reilly Solid conference, and has been recognized as a leading innovator by Frost & Sullivan. He is also a board member at The Maker Education Initiative, The BeagleBoard Foundation, and The Providence Athenaeum. He is a Fellow at the College of Design, Engineering and Commerce at Philadelphia University, was the Senior Design Engineer and Lecturer at Brown University, served as an Adjunct Critic at the Rhode Island School of Design, and served on the technical advisory board of MAKE Magazine. www.kippbradford.com/about-1/



Brad Peroney joined the staff of Carnegie Science Center in 2003 and currently serves as Program Development Coordinator. Most recently he created the educational content for the exhibition *BodyWorks*. This exhibition allows visitors to explore the human body from blood and guts to bones, brains, and senses. Brad also contributes science articles to the *Pittsburgh Post-Gazette* and trains Carnegie Science Center educators. Brad's career in informal education started at Shaver's Creek Environmental Center in Petersburg, PA, where his science background was paired with

his passion for working with youth. He has also held education positions with the Boy Scouts of America in Somerset, PA, and Camp Courage in Maple Lake, MN. Brad earned his bachelor's degree from Penn State, where he studied biology and ecology. In his free time, Brad is an avid birdwatcher and guitarist. He lives in Bellevue, PA, with his wife, with whom he enjoys traveling across North America, and two cats.

Post Show Talk with Kipp Bradford

(Paraphrased and approved by Kipp)

How did Kipp get involved in the maker movement?

Kipp always had a maker mindset since he grew up in a home where making was the norm. His family had a strong influence on his maker involvement. He gave an example that his mom made her own dress to attend his wedding. His family has had the tradition of DIY and maker because he grew up in a not super wealthy environment down in New Orleans. He especially remembered playing with Legos fostered his creative exploration of making.

What did he want to talk about on the show but couldn't?

Technology literacy is very important. The world is technically complex and we should strive to understand that. For example: Pittsburgh's self-driving Ubers. There's an amazing amount of technology that surrounds our day to day lives, like how a plane or a car converts natural gas into energy to power movement at the touch of a pedal. It's difficult to appreciate the beautiful aspect of technology and how quickly it's developed in light of current wars and disasters. Granted that some of these wars are caused by technology and technology contributes to technology imbalances. However, technology also creates things that help us survive disasters like hurricanes. We depend on technology to protect us. Since technology is so infused in our lives we should try to understand fundamental concepts of technology and how it interacts with our lives. We should take back the tradition and culture of making and not passively consume the technology we have access to.

How STEM careers should change their mindset:

Engineering is not just the intangible, abstract, math concepts we typically associate with it, it has a great social impact. Engineers don't think about the social impact that they have. What they're thinking about is how can I place this beam on a bridge that will support a certain amount of weight and not fall off. They aren't thinking of how where they build a bridge will affect people socially. Engineers should start thinking about that.

About his website: Blackmakers.org

The maker movement is really more the "modern American maker movement." America in the past and people currently all over the world have been making. It was not really until after WWII did we lose touch with making things for ourselves. When the modern American maker movement happened, it was a way to take back and understand how technology works on a personal level. When this movement happened, it was focused on white, affluent populations who had the time, money, and resources to start exploring and rediscovering making. There isn't a lot of diversity in the current maker movement. When you look at Wired magazine or Make

magazine, the covers mostly feature white makers. The maker movement isn't representative of the populations who are already creating and making on a day to day basis. The purpose of the website is to showcase the different faces involved in STEM careers. It is an opportunity to give children roles models in the STEM fields. The website is a testament to African American children in that they can truly go into different careers aside from musician or athlete.

Online Resources

Carnegie Science Center

www.carnegiesciencecenter.org/

kippkitts, LLC

www.kippkitts.com/

We Are Black Makers

<https://black-makers.com/about/>

Close Quarters: Creating A Maker Space In Your Home

<https://caedmonschool.org/2016/01/12/makerspace/>

How to Start a Makerspace – EdSurge Guides

www.edsurge.com/research/guides/how-to-build-your-makerspace

How to Stock Your Makerspace for 100 Bucks or Less

www.edsurge.com/news/2016-05-24-how-to-stock-your-makerspace-for-100-bucks-or-less-plus-an-essential-equipment-list-from-the-makerbus-driver

The Daring Librarian: Makerspace Starter Kit

<http://www.thedaringlibrarian.com/2015/06/makerspace-starter-kit.html>

Digital Harbor Foundation: How to Make Your Makerspace

https://blueprint.digitalharbor.org/make-your-school-makerspace/?q=/make-your-school-makerspace/&gclid=EAlalQobChMI-qu0cz31QIVjiWBCh3UWAnFEAAYAiAAEqIfOfD_BwE

8 Ways To Create An At Home Makerspace For Your Kids

<https://storytimetoys.com/blogs/playing-off-the-page/15668452-8-ways-to-create-an-at-home-makerspace-for-your-kids>

Maker Space for Kids

www.instructables.com/id/Create-a-Maker-Space-for-Kids/

How to Start a Makerspace When You're Broke

<http://knowledgequest.aasl.org/start-makerspace-youre-broke/>

Make Magazine: Projects

<https://makezine.com/projects/>

www.instructables.com/

Maker Project Lab

<https://makerprojectlab.com/category/project/>

Your Students can be “Makers”: 16 Projects Invented by Teachers

www.gettingsmart.com/2015/06/your-students-can-be-makers-16-projects-invented-by-teachers/

Design Squad Maker Projects

<http://pbskids.org/designsquad/build/>

Youth MakerSpace Playbook

<http://makered.org/makerspaces/>

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