



Making for the Greater Good: Educators Guide to Gulf Coast MakerCon

Our Goal

The goal of Gulf Coast MakerCon is to help people of all ages become empowered creators of their future and ours, to feel capable of creating, repairing, inventing, adapting, handling, trying and becoming active and engaged producers instead of passive consumers . To that end we hope that both youth and adults will take the opportunity of Gulf Coast MakerCon to:

- Meet and interact with all our Makers, who are sharing their unique passions and projects.
- Explore the wide variety of exhibits and presentations that will be available throughout the weekend.
- Experience a live performance or demonstration.
- Engage in a hands-on project or activity that you can take home.
- Collaborate on a project or share experiences with people of all ages.
- Learn about the power of the Maker community.
- Be inspired, as a student or member of the public, to try at least one new idea at home or at school.
- Be inspired, as a teacher, to bring at least one new idea for active making into the classroom.
- Get a sense of the wonder and value of following your passion!
- Inspire Curiosity in the world around you!

To that end, we've got some student activities handouts you can use during your visit, as well as a directory of educational and general information resources.

Gulf Coast MakerCon is produced by Eureka Factory™, a collaborative of creative individuals and business partners who believe in the power of community driven innovation to help people move from passive consumption to empowered and active creation of their future and ours. Eureka Factory also produces ROBOTICON Tampa Bay and other fine events and programs. EurekaFactory.NET

About the Maker Movement

The “maker” movement is simply the DIY creative spirit reignited for the 21st century. It’s a return to self-sufficiency, self-reliance and creativity, providing engaging and hands-on opportunities to inspire, educate, and entertain curious and creative learners of all ages. It celebrates arts, crafts, engineering, food, green design, music, science and technology and brings together communities who embrace the DIY (do-it-yourself) spirit. There are lots of ways to “make” education happen in this very active learning experience.

Bringing your Students to Gulf Coast MakerCon

Students can enjoy extended visits with Makers, hands on “Make & Take” activities and a full day of interactive fun and learning. The handouts, “MeetAMaker” , and “MakeUpYourMind”, are also available for teachers and students who would like to make a project of some of the educational opportunities the Faire provides.

Showcase Student Work

If you are interested in exhibiting your students’ work as Makers (or in sharing your very own Maker-ish classroom projects), please consider being part of our Maker Schools Showcase. Consider holding a Maker Festival at your school to exhibit student work in a variety of disciplines as wide as we welcome at Gulf Coast MakerCon.

Set Up a Makerspace

A makerspace is a place where young people have an opportunity to explore their own interests, learn to use tools and materials, and develop creative projects. See makerspace.com for more info.

Start a Young Makers Club

The Young Makers program is a collaboration between MAKE, The Exploratorium, and Pixar. The purpose of the program is to inspire and develop the next generation of makers, creators, and innovators. New clubs can form year round — and any and all efforts to get kids Making no matter where you make with kids is an opportunity for learning by doing! See youngmakers.org for more info. And of course, you can also just create your own **DIY Club for Kids!**

The Value of the Maker Experience

We hope to bring the Maker Movement to education in a few specific ways:

- Creating the context that develops the Maker Mindset, a growth mindset that encourages us to have the confidence that we can learn to do anything.
- Building a new body of practice in teaching making—and a corps of practitioners to follow it.
- Designing and developing Makerspaces in a variety of community contexts, in order to serve a diverse group of learners who may not share the access to the same resources.

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- Identifying, developing and sharing a broad framework of projects and kits based on a wide range of tools and materials that connect to student interests in and out of school.
- Designing and hosting online social platforms for collaboration among students, teachers, and the community.
- Developing programs especially for young people that allow them to take a leading role in creating more Makers.
- Creating the community context for the exhibition and curation of student work in relationship with all makers, and ensuring that new opportunities are created for more people to participate.
- Allowing individuals and groups to build a record of participation in the Maker community, which can be useful for academic and career advancement as well as advance a student's sense of personal development.
- Developing educational contexts that link the practice of making to formal concepts and theory, to support discovery and exploration while introducing new tools for advanced design and new ways of thinking about making. (Practically, this means developing guides for teachers, mentors and other leaders.)
- Fostering in each student the full capacity, creativity and confidence to become agents of change in their personal lives and in their community.

Impact Areas

- Inspiration : inviting students to participate in the creative economy and to direct their own future
- Innovation : serving as a catalyst for grassroots invention
- Education : building a connection between the community and learners

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Meet a Maker: Project Notebook

Pick a Maker project that you really like. Check it out! Talk to the Maker about it, and then make notes in this page of your Invention Notebook so that you might be able to make something like it yourself someday. Consider sketching your own ideas inspired by this Maker on the other side of this sheet!

Name of Maker : _____

Name of project: _____

What does it do?

How does it work?

How was it made?

What materials are needed?

Sketch your own ideas!

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Make Up Your Mind: Project Brainstorm

Step 1. Fill in the first two columns of the grid below. You can work with a partner to fill in the first column, but make the middle column your own personal favorites! It's OK to be silly.

15 things the world needs or big problems to solve (in the next 100 years or so)	15 things I like to make, do, or buy	15 themes of Gulf Coast MakerCon
<i>example: places for a billion people to live</i>	<i>example: chocolate</i>	Electronic music
		Alternative energy
		Art
		Robotics
		Electronics
		Musical Instruments
		Crafts
		Vehicles
		Games
		Prototyping
		Physics
		Mechanics
		Trades
		Costuming
		Programming

Step 2. Pick five combinations that include one item from the first column, one from the second column, and one from the third column. (They don't have to be in the same row, though!) Is there a Maker project you could create that puts the three things into one? In our example, you could put together "places for billions to live", "chocolate" and "electronic music" by composing The Chocolate Factory Where I Live: A Sonata for Synthesizers. Or maybe a commercial jingle about houses made out of cacao tree bark. Let your imagination soar. The crazier the idea, the better the Maker project of the future!

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Power of Repair

WE HOLD THESE TRUTHS TO BE SELF-EVIDENT

SELF-REPAIR MANIFESTO:

REPAIR IS BETTER THAN RECYCLING.
MAKING OUR THINGS LAST LONGER IS BOTH MORE EFFICIENT AND MORE COST-EFFECTIVE THAN MINING THEM FOR RAW MATERIALS.

REPAIR SAVES THE PLANET.
EARTH HAS LIMITED RESOURCES AND WE CAN'T RUN A LINEAR MANUFACTURING PROCESS FOREVER. THE BEST WAY TO BE EFFICIENT IS TO REUSE WHAT WE ALREADY HAVE!

REPAIR SAVES YOU MONEY.
FIXING THINGS IS OFTEN FREE, AND USUALLY CHEAPER THAN REPLACING IT. DOING THE REPAIR YOURSELF SAVES SERIOUS DOUGH.

REPAIR TEACHES ENGINEERING.
THE BEST WAY TO FIND OUT HOW SOMETHING WORKS IS TO TAKE IT APART!

IF YOU CAN'T FIX IT, YOU DON'T OWN IT.
REPAIR CONNECTS PEOPLE AND DEVICES, CREATING BONDS THAT TRANSCEND CONSUMPTION. SELF-REPAIR IS SUSTAINABLE.

REPAIR CONNECTS YOU WITH YOUR THINGS ◊ REPAIR EMPOWERS AND EMBOLDENS INDIVIDUALS
REPAIR TRANSFORMS CONSUMERS INTO CONTRIBUTORS ◊ REPAIR INSPIRES PRIDE IN OWNERSHIP
REPAIR INJECTS SOUL AND MAKES IT UNIQUE ◊ REPAIR IS INDEPENDENCE
REPAIR REQUIRES CREATIVITY ◊ REPAIR IS GREEN ◊ REPAIR IS JOYFUL
REPAIR IS NECESSARY FOR UNDERSTANDING OUR THINGS ◊ REPAIR SAVES MONEY AND RESOURCES

WE HAVE THE RIGHT:

TO OPEN AND REPAIR OUR THINGS—WITHOUT VOIDING THE WARRANTY
TO DEVICES THAT CAN BE OPENED ◊ TO ERROR CODES AND WIRING DIAGRAMS
TO TROUBLESHOOTING INSTRUCTIONS AND FLOWCHARTS
TO REPAIR DOCUMENTATION FOR EVERYTHING ◊ TO CHOOSE OUR OWN REPAIR TECHNICIAN
TO REMOVE 'DO NOT REMOVE' STICKERS ◊ TO REPAIR THINGS IN THE PRIVACY OF OUR OWN HOMES
TO REPLACE ANY AND ALL CONSUMABLES OURSELVES
TO HARDWARE THAT DOESN'T REQUIRE PROPRIETARY TOOLS TO REPAIR
TO AVAILABLE, REASONABLY PRICED SERVICE PARTS

INSPIRED BY MASTER JALOPP'S MAKER'S BILL OF RIGHTS AND PLATFORM 21'S REPAIR MANIFESTO

IFIXIT

JOIN THE REPAIR REVOLUTION AT IFIXIT.COM

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More About the Maker Movement

- **[Invent To Learn: Making, Tinkering, and Education in the Classroom](#)** gives educators a practical guide to bringing twenty-first-century tools, technology, and pedagogy to any classroom. The website also includes recommended books and hundreds of links to resources and professional development for making, tinkering, and engineering in the K-12 classroom.
- **[Video – Making in Education](#)** Gary Stager's interview with Steve Hargadon at the 2012 San Mateo Maker Faire.
- **[Constructing Modern Knowledge](#)** Premier event for teacher professional learning with the tools and materials of the twenty-first century.
- **[Making the Case for Making in Schools](#)** Authors Gary Stager and Sylvia Martinez speak to teachers and parents about changing schools to be more authentic places for learning.
- **[Learning by Making: American kids should be building rockets and robots, not taking standardized tests](#)** by Dale Dougherty (*Slate* magazine online)
- **[Make magazine](#)** The bible of the Maker Movement.

Young Makers

- **[Sylvia's Super Awesome Maker Show](#)** is a video series produced by Sylvia, an 11-year-old maker, and her father. The videos are youthful and vibrant examples of playful technology.

Making Matters!

How the Maker Movement is transforming education



8 Elements of a Good Maker Project

By Sylvia Libow Martinez and Gary S. Stager

- **Purpose and Relevance.** Is the project personally meaningful? Does the project prompt intrigue in the learner enough to have him or her invest time, effort, and creativity in the development of the project?
- **Time.** Sufficient time must be provided for learners to plan, execute, debug, alter, expand, and edit their projects. Class time affords students equal access to expertise and materials; projects may also need sufficient out-of-school time.
- **Complexity.** The best projects combine multiple subject areas and call upon the prior knowledge and expertise of each student. Best of all, serendipitous insights and connections to big ideas lead to the greatest payoff for learners.
- **Intensity.** Children have a remarkable capacity for intensity that is rarely tapped by the sliced-and-diced curriculum. Projects provide an outlet for the exercise of that intensity. Think about how long kids can spend mastering a video game, reading a favorite book series, memorizing the attributes of Pokémon, or building a treehouse, and you have a good template for successful, project-based learning.
- **Connection.** In great projects, students are connected to each other, experts, multiple subject areas, powerful ideas, and the world via the Internet. The lessons learned during interpersonal connections that are required by collaborative projects last a lifetime. While there is some merit in organizing student groups to "teach" collaboration, a teacher can hope to create a more natural environment in which students collaborate (or do not) based on their own needs. Collaboration may consist of observing a peer, asking a quick question, or by working with the same teammates for the duration of a project.
- **Access.** Students need anytime-anywhere access to a wide variety of concrete and digital materials. Personal student laptops make this possible, but we also need to think about the quality and quantity of craft materials, books, tools, hardware, software, and Internet access that allows learners to follow paths we may never have anticipated. When non-consumable materials are used, such as LEGO bricks, a sufficient quantity is necessary to ensure that students have everything they need for their projects and can leave the finished products together long enough for others to learn from them. The last thing you want is one student cannibalizing a classmate's work during project creation.
- **Shareability.** This is the big idea of project-based learning! Students need to make something that is shareable with others. This provides a great deal of motivation, relevance, perspective-making, reciprocal learning, and an authentic audience for the project. "A project is something you want to share" is a sufficient definition for learners of all ages.
- **Novelty.** Few project ideas are so profound that every child needs to engage in its development in every class, or year after year. Yes, that means that it may be time to rethink the annual marshmallow adobe project. If one student makes a fantastic discovery during a project, others can learn from it without slavishly repeating the steps of the pioneering student. In a healthy community of practice, learning continues and knowledge is shared naturally without coerced repetition.



From <http://www.weareteachers.com>

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Maker Education Resources

CodeSpells – <http://codespells.blogspot.com>

DIY.org – Skill based learning

Instructables – <http://www.instructables.com>

Maker Education Initiative - makered.org

Maker Kids - <http://www.maker-kid.com>

Maker Space in the Classroom: <http://makezine.com/2014/01/10/makerspace-in-the-classroom/>

The Maker Movement: The Case for DIY Science in the Classroom (Nature.com) - <http://bit.ly/1i1Zdl1>

Tinkering Fundamentals: Integrating Making Activities into Your STEM Classroom - <https://www.coursera.org/course/tinkering>

Tinkering School - tinkeringschool.com

Association for Experiential Learning - www.aee.org

Find more creative educational resources at GulfCoastMakers.com

& <http://eurekafactory.net/resources>

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