

## ***Makerspace Projects for School, Public, and Academic Libraries***

### **Q&A Log**

Questions from Live Demco Webinar, as answered by Colleen Graves, Teacher-librarian, Aaron Graves, Teacher-librarian, and Liz Bowie, Demco Content Strategy Manager

September 15, 2016

### **Why the Library?**

**Q:** I've been looking into makerspace ideas for over a year—at our public library, local elementary libraries, and ISTE (we have a middle school library). What I don't quite get, and will have to explain to sell to our staff and admin, is what makerspaces have to do with libraries. We think of libraries as reading and research literacy. This sounds a lot like a mashup of our Technology, Art, Woodshop, and maybe Music Exploratory classes. Can someone help explain how to convince people this belongs in a school library?

**A:** I've written about this a few times. One reason is to democratize maker tools and make them accessible for all students. (Read [A Library and a Makerspace post](#) and read [more here](#) and [here](#).) The other is because making is inquiry-based. I see making as a natural extension for the library as the library is a school's main hub of information.

From [littlebits, Design Thinking, and Design Challenges](#) Demco post:

*"Libraries are actually timeworn makerspaces in the sense that our communal space is a venerable place to find experts and create knowledge. The only difference is that we are moving beyond traditional literacies by adding making and invention to the mix. Now our students can create tangible things and create knowledge through that experience. Our patrons can [make meaning](#) through making. We want making and inventing to be accessible for all of our students and patrons."*

### **Patron Interests**

**Q:** Do you guys have some sort of survey that you use to try to figure out what sort of activities would be successful with your particular students?

**A:** I actually spend a lot of time chatting with my students before school and at lunch. I run ideas by them and I do most of my survey very casually. Our friend, Diana Rendina, has some ideas for great surveys that will be included in our second book, [Challenge-Based Learning in the School Library Makerspace](#).

**Q: I'm at a public library. How do I find out what my community wants when they are not currently library patrons?**

**A:** Community surveys can be distributed by mail or handed out at community events, local markets, etc.

**Q: You have a captive audience in schools. How do we appeal to the public for our public library makerspace programs?**

**A:** I've seen a lot of great public library programming via social media. Twitter, Facebook, Instagram, and Snap Chat are all ways to appeal to patrons. Check out the [Freeman Branch Library](#), [Harris County Public Library](#), [Edmonton Public Library](#), and although not a public library, [UNCG SELF Design](#) Studio is an awesome academic makerspace!

## **Managing and Scheduling**

**Q: Would you please give advice on starting a makerspace in a high school library learning commons in which the time frame would be 25-minute lunch periods? Thank you.**

**A:** I run a lot of my maker programming at lunch actually! I host quick drop-in activities for lunchtime and reserve longer projects for after-school clubs. My best advice would be to poll your students and do what works for their schedules. When I taught at middle school, I did most of my open makerspace before school. Kids were in the library creating almost every morning. However, in my high school, more students prefer the library to be a quiet place to study. I have morning makers, but it is not anything like the lunch crowd!

**Q: How do I manage the space in an effective manner and yet give all students (700) an opportunity to use the space in a meaningful manner? Last year kids came at recess, but in order to get all the kids through, some kids came once a week and others once every couple of weeks. This method broke up the continuity for those kids who needed more time. Any ideas would be welcome.**

**A:** The best way to make the space available for all students is to integrate making into classroom concepts. We'll have lots of ideas for you in [Challenge-Based Learning in the School Library Makerspace](#).

**Q: When do your high school students come to the makerspace in the library? My high school students have 8 periods, with only a 27-minute lunch and 4-minute class changes. Any ideas?**

**A:** See answer above.

**Q: How often do you host a makerspace activity in the library and how long do you keep items made on display?**

**A:** I host activities when I do not have research planned, so it varies. Some months I have loads of stuff crammed in (see this post about [art bots](#) and this post about [last February](#)), while other months research and classroom instruction takes over.

**Q: With a "set" schedule, how do you get students in? Core teachers will say they need time to teach content.**

**A:** Check out this [maker-focused research project, which](#) will be covered in [Challenge-Based Learning in the School Library Makerspace](#).

**Q: Do you have makerspaces every week or once a month? And what age groups do you address, 7 and up or younger?**

**A:** Answered above.

**Q: Do you have club time during school hours or do you have after-school clubs?**

**A:** I don't actually have a makerspace club, but most of my makers are repeat and frequent patrons!

**Q: How do you manage students in the space? Volunteers?**

**A:** My student library aides help me run maker programming, and sometimes I invite experts in.

**Q: Do you have a ratio or proportion for supplies per user? Do you have a ratio of space per user?**

**A:** This is answered in full in [Challenge-Based Learning in the School Library Makerspace](#).

**Q: How long approximately does it take for a child to finish a project?**

**A:** Varies with every learner and every project.

**Q: How did you decide where the makerspace should be located? Is it in its own room or is it out in the public space?**

**A:** I wrote about [this here](#).

**Q: How do you store projects that are "under construction" in the makerspace?**

**A:** My "in progress shelf" is always in progress! Read about [maker storage here](#).

**Q: How/where do you store all the supplies?**

**A:** Read this [makerspace storage post](#).

**Q: This may not be a problem in a school library, but do you have any tips on how to keep items from walking off?**

**A:** I talk about this a bit in this [makerspace storage post](#).

**Q: Do you loan the Raspberry Pis/Arduinos for students to take home, or are they being used only during the workshops?**

**A:** I have checked out maker equipment, but they are mostly only used in the library during workshops, design challenges, or open makerspace.

**Q: Do you have recommendations for starting from scratch for furniture or space design?**

**A:** I like standing height tables, but Diana goes into depth about this in [Challenge-Based Learning in the School Library Makerspace](#).

## Instruction

**Q: Do you recommend using a thinker sheet for students to complete so their classroom teacher knows what they did during their visit?**

**A:** Maker journals are a great way to track learning! We have a whole chapter about it in [Challenge-Based Learning in the School Library Makerspace](#).

**Q: With coding and robotics, do you give instructions for individual robots when learning the program (e.g. Edison or Ev3 or Spheros)?**

**A:** We have some cool programming projects for Sphero and Dash/Dot in [The Big Book of Makerspace Projects](#).

**Q: Do you give directions at each makerspace or do the patrons just sit at a table and "do" something?**

**A:** It depends! I host workshops frequently and challenge students to create certain things or acquire certain skills. We have tips for classroom and workshop instruction in [The Big Book of Makerspace Projects](#).

**Q: How do you get kids past the exploration stage to the creation stage?**

**A:** I think exploring is an excellent skill that still focuses on problem solving. But when I want kids to go further with an idea, I incorporate design challenges. (This is discussed frequently in [Challenge-Based Learning in the School Library Makerspace](#).)

## Makerspace Tools

**Q: Do you have some sort of release when using dangerous tools, such as when soldering? What is the age range for a project that uses soldering?**

**A:** We have a lot of information on this in [Challenge-Based Learning in the School Library Makerspace](#).

**Q: How do you protect yourself/your library from lawsuits resulting from the use of equipment provided in your makerspace? Are there forms, insurance recommendations, etc?**

**A:** See above.

**Q: How many littleBits kits do you own?**

**A:** I have a littleBits Pro Library. My Librarian's Guide to littleBits is free and available for [download](#)!

**Q: What is on your tinkering table all the time?**

**A:** A pile of junk. 😊

**Q: Did you purchase any equipment for the makerspace (i.e. 3D printers)? If so, what do you have?**

**A:** I try to purchase equipment through DonorsChoose.org. You can see my [funded projects here](#).

**Q: For what age group would you recommend the Scribble Bot project?**

**A:** I personally think it is fun for all ages!

**Q: Do most motors come with the wires?**

**A:** No. But we have full instructions for this in [The Big Book of Makerspace Projects](#).

**Q: Where do you source the LEDs and motors?**

**A:** Sparkfun and Amazon!

**Q: Where are the kits from?**

**A:** We put parts lists for all projects in our book, but I've also included direct [wishlists here](#).

## **Funding**

**Q: How do you handle expenses? For instance, if you have students make paper circuits, do you charge? Or does your library cover the cost?**

**Colleen Graves:** I never charge students. I get sponsorships or fund through DonorsChoose.org.

**Liz Bowie:** [Demco's free Grants Search Tool](#) is a great place to start to find funding sources.

**Q: How do you pay for your things like the sound booth?**

**A:** Answered above.

**Q: Can you share some grant sources for getting filament?**

**A:** Answered above.

**Q: Can public libraries sign up on DonorsChoose.org?**

**A:** No, but you can use GoFundMe or another crowd-funding campaign.

## **The Big Book of Makerspace Activities**

**Q: I'm trying to find your book on Demco. I thought I saw it last time I was on the website, but now I can't find it.**

**Liz Bowie:** *The Big Book of Makerspace Activities* is set to be released on Oct. 21, 2016. It should be live on Demco.com by the first week of November.

**Colleen Graves:** It is also available on [Amazon](https://www.amazon.com).

**Q: Are these projects that you're demonstrating in your book?**

**A:** Yes!

**Q: Does the book include the brand names of the products you are using in the webinar?**

**A:** Yes, we have projects with Chibitronics, Makey Makey, littleBits, Sphero, Dash and Dot, Scratch, and MORE!

**Q: How many of these projects are make and take?**

**A:** We have a chapter dedicated to free and low cost and another that is all projects made with recyclables and smartphones. Plus, the paper circuits, sewing circuits, and coding projects would all be take home.

## Resources

**Q: What is your blog address?**

**A:** [colleengraves.org](http://colleengraves.org)

**Q: What is the name of the book?**

**A:** [The Big Book of Makerspace Projects](#) by Colleen and Aaron Graves

[The Invent to Learn Guide to Fun](#) by Josh Burkner

[The Art of Tinkering](#) by Karen Wilkinson and Mike Petrich

[The Lego Power Functions](#) Idea books by [Yoshihito Isogawa](#)

**Q: What was that Lego author's name?**

**A:** [Yoshihito Isogawa](#)

**Q: Any educational websites for makerspaces for pre-teens and teens?**

**A:** Lots of links here: <https://colleengraves.org/makerspace-resources-and-programming-ideas/>

**Q: Can you please tell me the name of the app for programming robots?**

**A:** Tickle and SPRK Lightning Lab for Sphero

**Q: Are there any websites or apps for kids to learn more techniques to make robots?**

**A:** We have projects in our book, [The Big Book of Makerspace Projects](#).

**Q: Can you repeat the names of the coding apps?**

**A:** See answer above.



## **Academic Libraries**

**Q: How academic do makerspaces need to be at the university level?**

**A:** A good focus would be on reaching pre-service teachers.