

TEEN EXPERTS GUIDE MAKERSPACE

MAKE



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Envision a middle school library where teens congregate after school, excited—even at the end of the school year—about creating and making something they’ve never tried to do before. Hear the chatter of excited voices asking the school librarian what the next “Mayker Monday” workshop will be. Picture students among the stacks, clustered around pine tables, busy building and creating. Instead of constructing yet another paper football, they are, in fact, collaborating on how to build their own app. Imagine students getting excited about creative technologies and engineering and hoping to one day attend MIT.

That’s the power of a makerspace in a school library.

What Is a Makerspace?

Put simply: A makerspace is a place where makers can envision a project, find an expert, and create something. Libraries have always held programming during which patrons were able to come in and create. The only difference is that a makerspace encourages problem-solving skills and connects with the greater community for expert ideas. Our makerspace is available for our students every day, so they can create and play with innovative technology daily. We’ve focused our makerspace on inventive electronics, robots, circuit bending, duct tape, and even cooking.

In a makerspace, kids can create bristlebots out of toothbrushes and pager batteries, use a Makey Makey kit to assemble a banana piano, or learn how to write a successful blog. The possibilities are endless, and you need a panel of teen experts to guide your planning if you want the makerspace to be successful.

Why Is One Needed?

In our world students need creative-thinking and problem-solving skills so they can be prepared to enter the job market after college. A makerspace project is intended to teach students how to think for themselves and problem solve and to get students interested in getting a job in technology, science, or engineering.

We want our students to develop problem-solving skills and become engaged with making technology, not just using it. By taking things a step further and becoming a maker, creator, innovator, and inventor, they can take ownership of the innovative technology that surrounds them. The school library should be seen as a place to create, build, and craft their own ideas while engaging with the community—not as just another dusty bookshelf. In a global economy with so much competition overseas for jobs in technology, a





Figure 1. Teen-designed space.

Credit: Photo by Colleen Graves

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makerspace helps students feel encouraged and equipped to begin a career in technology. To facilitate students' developing curiosity about the world around them, educators, including school librarians, must encourage students to see themselves as curators of their own learning. Furthermore, the space isn't just a place to play Minecraft; it is a place where teens contribute to a learning community and become involved in a practical experience.

How Did I Get Started?

Last summer I transformed our school library into a learning commons, and the results of the shift were phenomenal. Adding color, new furniture, and a welcoming atmosphere got the students in the door. Every morning the library was full with sixty to one hundred students who wanted to read, study, or work on collaborative projects. However, to keep kids coming through the door, I knew I needed to institute some creative programming.

I had a small conference room behind circulation that was used only on random days for testing. This seemed like the perfect place for collaboration. I set up a Teen

Advisory Board (TAB) and had the students help me pick furniture and design the space with the guiding idea that the furniture should be lightweight, moveable pieces like floor rockers and stools. We have two trapezoidal tables that can be separated or placed together to make a larger collaborative space (see figure 1). The teens helped me paint the tables with chalkboard paint and planned where to place furniture so that it could be moved easily. Just letting students paint got them excited about the space. I'm not sure anyone had ever let them paint anything before! While this space is too small to host maker workshops (we use the main library for those) students use the makerspace during the day to read, make videos, or collaborate on other projects. For inspiration, magazine binders contain instructions for various maker projects; these binders are displayed in rain gutters on the wall.

After ALA Midwinter 2012 I began to read e-mails (posted via an ALA online discussion) about "Maker Mondays," and my TAB and I decided to institute workshops for students. This simple idea—envisioned by a number of school librarians—was to host maker projects every Monday in May. It

was late April, and most teens at middle school were so ready for summer. Be that as it may, the day we talked about makerspaces and workshops, my TAB was brimming with enthusiasm. I explained what a makerspace was, and we began to browse a Google doc list of ideas started by PC Sweeney. My kids couldn't believe all the cool ideas we found in the doc, and right away we started planning Maker Mondays. We made a list of ideas that the TAB members were enthusiastic about. They wanted to make LED throwies at Christmas time; they thought it would be fun to make Lego scenes and film them; and they were stoked about the possibilities of making their own apps.

The key to successful workshops was letting the teens choose what workshops we would hold. I thought getting donated toys and making Frankentoy would be really enjoyable, but the kids were more interested in blogging and Minecraft. Each member of our

TAB had a hand in designing the space, choosing the workshops, promoting each event, and leading a Mayker Monday event (see figure 2 for examples).

We decided to end the year strongly and hold a makerspace event every Monday for the month of May (see figure 2). For the upcoming school year, we are going to hold one or two workshops a month, and teens will still lead the workshop or be in charge of finding a community expert to coteach. The workshops last only one hour and are done directly

after school. Most of my time creating workshop ideas was spent during our TAB meetings since the students were the ones in charge.

Workshop Ideas

Our workshops started out with minimal to no cost for the library. The teens decided we'd introduce Mayker Mondays with duct tape projects because duct tape is so popular. Each student brought a roll of duct tape, and we crafted presents for Mother's Day. The first workshop was a mix of girls and boys who were enthusiastic about making different objects out of duct tape (see figure 3). Each TAB member printed instructions for a project he or she could help other students assemble. The students at the novice level made bookmarks, and students who were already duct tape experts designed wallets. Students who couldn't make the workshop came to the library the next day to pick up how-to instructions.

The next week, our resident blogger taught interested students how to start and make their own blogs. She led students through choices of sites for blogging and explained the



Figure 2. Publicity for the first set of workshops.

difference between microblogging/fandom blogs like Tumblr and personal or media blogs best supported by Blogger and Edublogs. She explained how to keep readers interested and the importance of posting frequently. Her "Blogger

Figure 3. Zeni shows off her leadership capabilities.

Credit: Photo by Colleen Graves



Expo” was shared via Google docs, and all of the teens who created blogs linked their newly hatched blogs on this doc. One sixth-grade leader raved, “It was fun because we could collaborate and become blog buddies. It also felt awesome to be a teacher because I was the expert!”

Our biggest event was our Minecraft workshop (see figure 4). We had one expert from our school and two outside experts in attendance, one of whom was a friend who actually works for a gaming company. The leaders demonstrated some of their amazing feats in Minecraft and gave students tips on codes they could use to build underground worlds, bombs, and indulge in all manner of Minecraft mania. After this workshop, kids asked if we could have a Minecraft workshop every week!

Students as Leaders

Having students as workshop leaders (see figure 4) was an integral part of the success of our makerspace events. One big benefit was that, if I didn’t know anything about the activity, I could rely on my student helpers to lead others or to know somebody who could. For instance, I know next

to nothing about Minecraft, and, actually, none of my TAB members did either, so we recruited a student expert on campus along with a high school student who spent hours on the game. Our own student expert created Minecraft workshop flyers and hung them all over campus. His teachers came to the library and asked me if that student was really leading a workshop. They were surprised he had volunteered to lead others because normally he is quiet and reserved. His mother was also surprised and excited to see him taking a leadership role. As a school librarian, I was seeing a totally different side of this student and was able to help instill confidence in this young man. Concurrently, he felt ownership in the library and felt like it was not only a safe place, but also a place where he could grow.

What’s Next?

With the assistance of grant money, the library makerspace workshops being planned as I write this will include electronics and a variety of other tools to entice students into tinkering with technology and to encourage students to join the do-it-yourself movement. Our counseling office is helping us

partner with community experts by corresponding with our district career center and employing guest speakers to lead activities with our students. We are also speaking with community experts at Motorola and IBM about leading our students through maker workshops; these workshops will allow the school library to provide access to training and tools and will give all students the opportunity to develop skills with technology.

I also think expanding on our previous workshops will help kids sustain interest in these new ideas. Maybe we can hold another blog workshop to see how our students are doing with their blogs or spend a month or two actually making an app we can post on iTunes and Google Play!

Expanding Our Influence

A school library already provides a safe place for our students. Creating a makerspace adds a nurturing, positive environment that encourages creation, questioning, and thinking. Involving students in the redesign and



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Figure 4. *Minecraft Mania in the library.*
Credit: Photo by Colleen Graves

workshops encourages the process of creative collaboration. Plus, their sense of ownership creates a bustling library that can be the heart of a school's community of learners. One teen exclaimed, "Makerspace workshops were fun because I could hang out with my friends and make stuff." I strongly recommend allowing students to guide a library's redesign and workshops. Overall, being positive, flexible, and willing to experiment leads to stakeholders' adopting a transformative view of what was once seen only as a place for books. At our school, students now see the library as a place where they not only belong, but a place where they can become a cutting-edge leader. When the library becomes a space to tinker with inventive ideas and dabble with technology and electronics, it becomes not only a place to learn, but also a place to create.



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recent awards include the Texas Library Association Vivian Greenfield Education Award (2011), ALSC's Bound to Stay Bound Books Scholarship (2011), and a Lewisville Education Foundation Grant for "Apps and Adapts" (2013), a grant that allowed her to buy apps and accessories for the school library's iPads used in the learning commons she created by transforming a thirty-year-old traditional library space. She blogs at <www.colleengraves.podbean.com> and is active as a leader of professional development sessions in her district (Lewisville ISD) and beyond. Her article "Learning Commons on a Dime" was recently published in School Library Monthly.

Recommended Resources:

- American Library Association. 2013. "Manufacturing Makerspaces." <www.americanlibrariesmagazine.org/article/manufacturing-makerspaces> (accessed May 1, 2013).
- Hamilton, Buffy. 2012. "Makerspaces, Participatory Learning, and Libraries." *The Unquiet Librarian* (June 28). <<http://theunquietlibrarian.wordpress.com/2012/06/28/makerspaces-participatory-learning-and-libraries>> (accessed June 15, 2013).
- Manella, Lorenzo. 2013. "How to Turn a School into a Makerspace." *Maker Faire Rome* (April 19). <www.makerfairerome.eu/2013/04/19/how-to-turn-a-school-into-a-makerspace/?utm_source=twitter.com&utm_medium=marketing&utm_campaign=makerfairerome> (accessed December 1, 2013).
- Sweeney, PC. 2013. "Maker Cookbook." <<https://docs.google.com/document/d/1lyYoqNZU16j45LrXV8Go86DVcr6Xm7r7nIk8UvNiNWU/edit?usp=sharing>> (accessed August 20, 2013).

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