HOW TO START A Make R Space

Planning and Resource Guide

With the ever-growing popularity of the maker movement, public, school and academic libraries have become places where innovation is fostered and hands-on learning comes to life. Makerspaces range from high-tech to low-tech to everything in between.

Look Inside for These Essential Tips:

- Planning Your Space
- Securing Funding
- Getting Buy-in From Staff
- Low-tech Makerspace Ideas
- High-tech Tools to Explore



STEP 1: Planning Your Space

Your makerspace can be as high-tech or low-tech as you want — the only requirement is that it inspires your students or patrons to become creators! So how do you know what types of tools you want to provide?

Tips to Get the Ball Rolling:

- Map out your space: Determine how much creation space you have to work with. Will you have a dedicated area in your library, or will you use mobile carts and tables?
- **Consider storage:** Where will you keep extra supplies and works in progress?
- Ask for input: Reach out to your community to determine your makerspace goals. One-on-one conversations, focus groups and surveys can give you invaluable feedback about the types of projects library-goers are interested in.
- Incorporate STEM/STEAM: The library is the perfect place for STEM/STEAM learning to come to life. Consult with teachers and talk to students to establish a vision for your space that supports the curriculum and captures kids' imaginations.
- Meet 21st century needs: Your makerspace can serve as a place for students to design, code, create and demonstrate 21st century skills, as well as provide opportunities for young entrepreneurs. It can also be a place for community members to explore technology and test ideas.

Expand on science, technology, engineering and mathematics principles with hands-on activities like the Power House 2.0 Science Lab Kit.



Mapping out your space and designating activity areas or certain zones can help you make the most of your square footage.



With a spot for tools and maker supplies, spaces stay organized. Shown: Diversified Woodcrafts Mobile Work Bench



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STEP 2: Securing Funding

You've come up with a plan for your makerspace – now how do you go about securing the funds and supplies needed to turn your vision into reality?

 Apply for grants: Search the database at demco.com/ goto?grants for grants currently available. Look for state-specific funding and target

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smaller grants, as they are easier to attain than larger competitive giveaways.

- Appeal to local businesses and service organizations: Set up face-to-face meetings if possible, and come prepared with details about your planned makerspace. Assistance may come in the form of funds or expert help.
- Start a direct fundraising campaign: Crowdfunding sites like Kickstarter and Indiegogo can be an effective way to raise funds, as can reaching out to library users through email. For school libraries, DonorsChoose.org can be an excellent way to obtain funding and purchase supplies.
- Ask for supply donations: Hold a drive; many people in your community will be happy to pass on their gently used LEGOs[®] and clean out their craft closets.





STEP 3: Getting Buy-in From Staff

How can you get the entire staff excited about your makerspace? Hold a staff maker event and let them tinker and play!

4 Reasons to Hold a Makerspace Staff Day

- Advocacy: Taking the time to share what you're doing and why will help your entire staff advocate for the important work you do.
- 2. Marketing: Let staff learn about the programs you're offering. Build their excitement about them, and they'll help promote the amazing things you're doing in your library!
- **3. Team building:** Maker programs help all participants (even adults!) build listening, compromising and teamwork skills.
- 4. It's fun: The fun staff members have while trying out your maker projects will stick with them and have a positive impact on their work.

STEP 4: Keeping It Simple — Low-tech Ideas

Technology is nice, but it's far from a makerspace requirement. If you want to start making in your library or classroom, stock up on these inexpensive (or free) items for limitless possibilities.

- As much cardboard as you can find: Save tissue boxes, toilet paper rolls and boxes. Some projects work better with corrugated cardboard, so it's a good idea to have multiple types.
- Plastic bottles/jars/containers: Put a collection box in the cafeteria and staff lounge to collect 2-liter bottles and coffee cans; within days you'll have plenty of stock. And don't forget to save the caps for wheels, etc.
- **Straws:** You can get a huge box at a warehouse store for a couple of dollars.
- Pool noodles: They are very easy to cut and can be used for so many things. They're sturdy enough to serve as wheels, and you can easily poke straws or skewers through them to build some amazing structures.
- **Basic tools:** Purchase a set of screwdrivers, wire cutters and pliers.
- Glue: Stock up on hot glue, and don't forget the Goo Gone[®].
- Button makers: Users can create their own designs for clubs, fundraisers, etc.









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- **Copper wire:** Craft wire is available in different colors and can be used to make jewelry and hold just about anything together.
- Wooden dowels and toothpicks: These serve as great axles and can support otherwise floppy structures. You can also use kebab skewers.
- Duct tape: Duct tape is to makerspaces as water is to life.
- Yarn: Yarn is great for knitting and crocheting, but it is also great for adding a little hair to your coffee-can robot or a string to your balloonpowered car. Craft stores have inexpensive yarn and often offer educator discounts.
- Broken/obsolete technology: Ask your tech department for donations of old technology that's no longer being used. Students and adults alike will love taking apart technology, exploring the insides, and making their own creations, such as bracelets of their names with keyboard keys and necklaces featuring motherboard charms.
- Perler beads: These beads are inexpensive, and you can make some incredibly intricate designs. Creators can make their own action figures to use in stop motion or green screen videos.







STEP 5: Go High-tech — Technology to Explore

A plethora of gadgets and tools on the market provide opportunities for library users to experiment with technology to invent and create:

- **littleBits™:** Electronic building blocks snap together with magnets and build everything from remote-controlled cars to smart home devices.
- Cubelets[®] Robot Blocks: Magnetic blocks that connect to build robots and practice coding.
- Dash & Dot Robots: Programmed and controlled from a smartphone or tablet with free Wonder, Blockly, Path, Xylo and Go apps.
- **Cue Robot:** Emotive AI technology lets students switch between Block and JavaScript programming as they learn about coding.
- Ozobots[®]: Tiny, app-enabled programming robots; perfect for teaching the basics of coding.
- Edison Robot: Modular, mobile robot immerses kids in robotics, programming and STEM concepts; can be built up with LEGO[®] bricks.
- **Sphero**[®]: An app-enabled robotic ball controlled by a tablet or smartphone.

- Rokenbok[®] Engineering Pathways STEM Lab: Carefully engineered, reusable 3-D building blocks and an Arduino-compatible SmartBlock; includes comprehensive, project-based curriculum.
- 3-D printers and pens: Create everything from cookie cutters to jewelry to models of cities; use with 3-D design apps, such as Tinkercad, to expand design-thinking skills.
- Multimedia production tools: Multiple tools, including digital cameras, green screen kits, audio equipment and production software can be used to create multimedia video and audio projects.

You may also want to partner with a local company, university or community college to tap into experts in robotics, media creation or other technology.

Even if you're not the most technologically savvy, don't be afraid to jump in and try. You'll be surprised what you learn and what your students and patrons can teach you. That's what makerspaces are all about — innovation, perseverance and learning from mistakes.





This page: 1) littleBits[™], 2) 3Doodler[®] 3-DPen, *Opposite page*: 3) Ozobots[®], 4) littleBits

For more makerspace products, visit **demco.com**, Search: *makerspace*

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Ideas and Inspiration

Remember, as your students' and community's needs evolve, so will your makerspace. Use online resources to keep your space fresh and current. At **instructables.com**, you can find instructions for thousands of different maker projects — high-tech, low-tech, and everything in between. Demco's Makerspace Movement Pinterest board **pinterest.com/demco/makerspace-movement** — is another great source for project ideas and tips to get started, as is Demco's Ideas and Inspiration blog at **ideas.demco.com**, Search: **makerspace**.

Don't forget to read your colleague's blogs as well for more inspiration — and as you get more confident, you just might want to blog about your own original project ideas!



Learn MORE! Visit ideas.demco.com, Search: makerspace







Why the Library?

Reasons Makerspaces Work Well in Libraries

By Colleen Graves

Need evidence to get buy-in for a makerspace in your library? Here are key points to aid your cause.

Libraries are Already Timeworn Makerspaces

You may not have thought about libraries throughout history as being makerspaces, but it's true; they've been communal spaces since the beginning and are respected places to find experts and gain knowledge.

The only difference these days is that libraries are expanding beyond literacy and adding making and inventing to the mix.

Making Adds Meaning

Creating leads to learning, fosters deeper connections with others and inspires entrepreneurship. Why shouldn't making and inventing be accessible to everyone?

Through makerspaces, patrons and students see the library as a place to create and a place to actively explore new ideas. These spaces are also where people can engage with their community, solve problems and de-stress.

Your Library Can Be a Destination

Housing maker materials in the library provides access for everyone, and it keeps people coming back again and again.



MAKERSPACE BENEFITS

Students and patrons can do all of the following at library makerspaces:

- Create tangible things for a sense of pride and ownership.
- Gain newfound knowledge through hands-on experiences.
- Envision a project, find an expert and get started on it.
- Become interested in making technology, not just using it.
- Feel safe to be themselves and to read, tinker, learn and even fail.

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