



Pacific Library Partnership



Makerspaces and Making In California Public Libraries: Fostering Community Creativity

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Introduction

Makerspaces and maker activities are popular in public libraries across California. These initiatives aim to provide community members with access to tools, technologies, and spaces that foster creativity, learning, and collaboration. Despite the growing prevalence of library makerspaces, there is currently no standardized definition or approach used consistently across the state.

This report, "Makerspaces and Making in California Public Libraries: Fostering Community Creativity," presents findings from a comprehensive study conducted in late 2023 through early 2024. The research included a statewide survey of library staff, focus groups with representatives from six jurisdictions, and site visits to three library systems.

The study explores the diverse range of makerspace offerings, goals, and practices in California public libraries. It highlights the challenges and opportunities associated with implementing and sustaining maker programs, particularly in terms of community engagement, staffing, funding, and equity.

Through an analysis of best practices and common obstacles, the report provides actionable recommendations for libraries seeking to launch or expand their maker initiatives. These recommendations emphasize the importance of designing maker programs that prioritize community needs, leverage local expertise, and align with clearly defined goals.

Ultimately, this report aims to support California public libraries in harnessing the potential of makerspaces to build more vibrant, inclusive, and creative communities across the state. By sharing insights and strategies from the field, it seeks to foster continued innovation, collaboration, and advocacy around library maker programs.

Methodology

The following activities were a part of this project’s research process:

- A survey was sent to library staff (including front-line and leadership) in the fall of 2023. 119 responses to the survey were collected representing 63 jurisdictions. Figure 1 below shows the location of each responding jurisdiction.

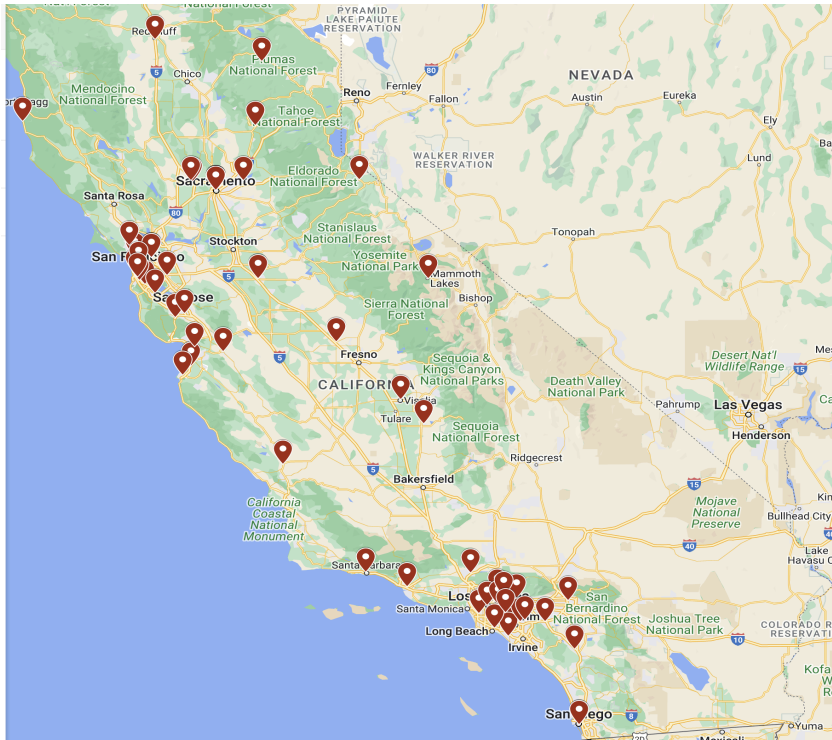


Figure 1: Jurisdictions completing state-wide survey

- Survey respondents were asked if they would be interested in participating in a focus group to learn more about their making and makerspace activities. All those who responded “yes” to that question were contacted and two focus groups were held. In total, staff from six jurisdictions (Belvedere Tiburon, Huntington Beach, Los Gatos, Pasadena, Redwood, and San Bernardino) participated in the focus groups. The map below shows the jurisdictions represented by those participants.

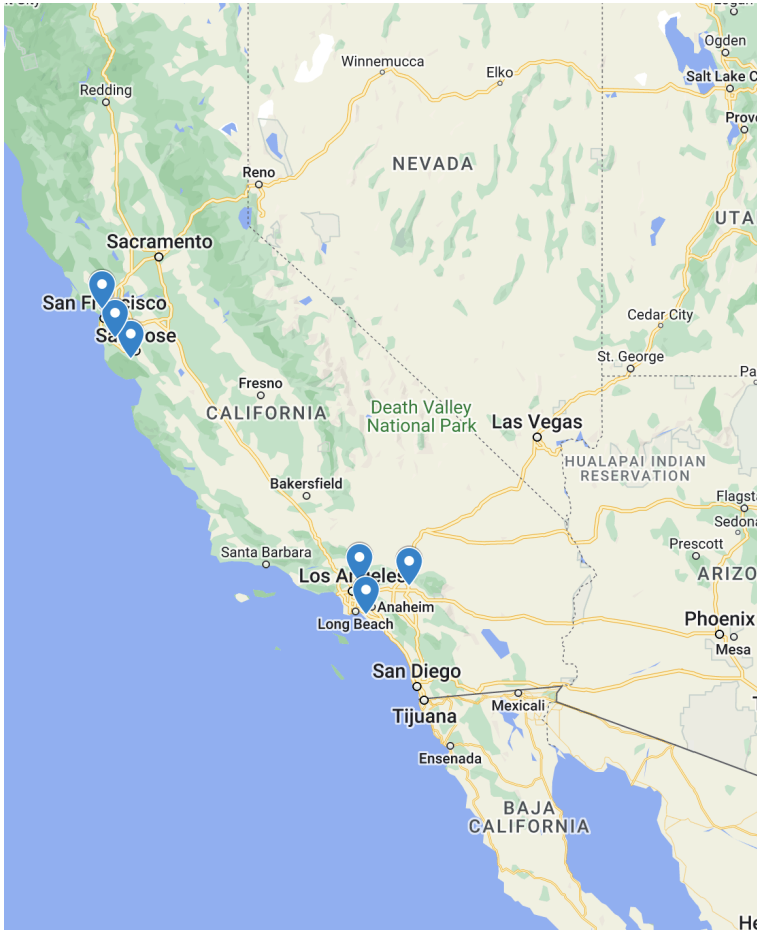


Figure 2: Jurisdictions participating in focus groups

- Staff who completed the state-wide survey were also invited to participate in a site visit. Three locations took part in these visits, Corona Public Library, Sacramento Public Library, and San Diego Public Library. These visits included one day of visiting one or more library buildings, interviews with staff who facilitate making activities and/or makerspaces, and conversations with those who participate in the library's maker activities.

From these activities the following findings and recommendations were developed. *¹

¹ Across all forms of data gathering library staff mentioned areas in which their making activities and maker spaces were still coming back from pandemic closures. For some libraries the pandemic caused an entire re-thinking of maker spaces and making activities. For others it was easier to come back from closures and continue from where they left off at the start of the pandemic.

Findings

What is Happening in Libraries Across California



Figure 3: Survey respondent words used to describe making/makerspace

The word cloud above visualizes how library staff submitting surveys describe making/makerspaces in just a few words. When talking with library staff and visiting making activities and makerspaces in libraries, it's clear that the ways in which those working in libraries define and demonstrate the terms highlighted in the word cloud do not always align. It's also clear that essential resources such as funding and staffing, along with staff commitment, have a strong impact on how making/makerspaces is implemented through libraries in California.

Community

“The best thing about our Makerspace is the budding community. Our Makerspace just opened this year, and watching patrons learn from each other- whether it be language translation help, brainstorming and bouncing ideas, or sharing technical expertise, has been the greatest success of the Makerspace.” - survey response

At the San Diego Public Library Central Library, a commitment to community and technology are clearly demonstrated. For example, the Central Library's makerspace encourages community members to develop skills and even design library programs together. This is seen in the programming held during FOSS (Free Open Source Software) week. One program brought community members and staff together to talk about the potential for FOSS. What was especially valuable to see was the way in which community members learned from and with each other. At the event it was also clear that the relationships built among community members allowed for learning to occur. Figure 4 shows a library staff member and community member talking together about FOSS.

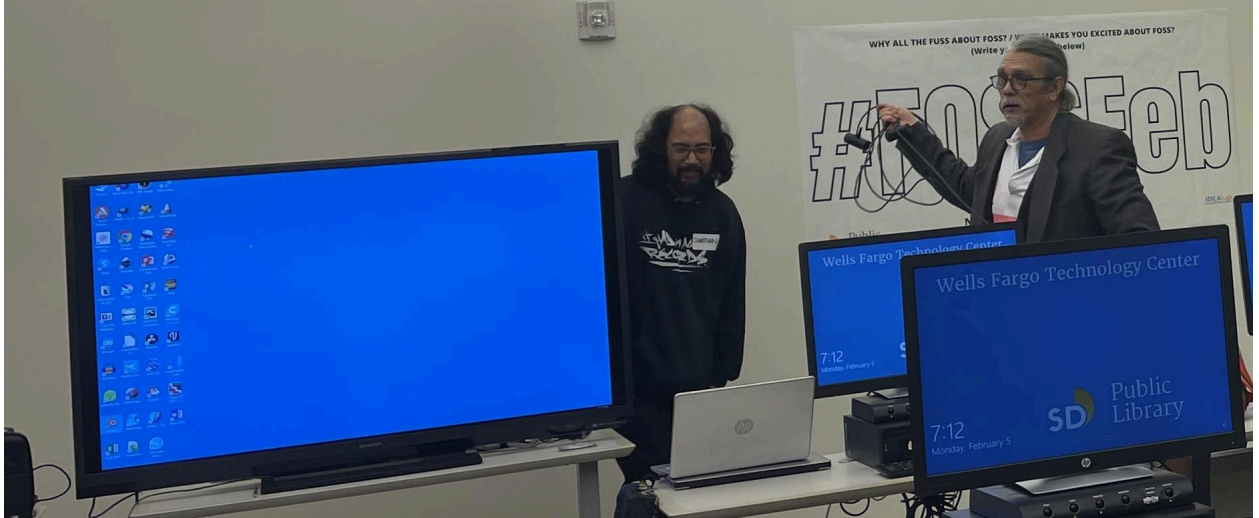


Figure 4: San Diego Library Staff Member (left) and community member (right) engaging in discussion during FOSS Week program.

While the FOSS Week program had limited attendance, it was clear from those who did participate that they were extremely engaged and that they found the library makerspace providing an opportunity to learn from and with each other (and with library staff).

Activities

“My favorite thing is the creativity that is drawn to this space. I provide basic instructions and safety to patrons that want to use the library’s technology and I think it’s amazing to see what people come up with when given the tools.” – Survey response

“Library staff have creative freedom to try out new ideas.” – Survey response

Across focus groups and survey responses the idea of providing community members of different ages the opportunity to create proved to be central to all makerspaces and making activities. Library staff talked about making for children and young adults, families, seniors, job seekers, and entrepreneurs and for each audience the idea of unleashing creative potential came to the fore. Library staff encourage those engaged in making activities to recognize that everyone can be creative as long as they have the right tools, the right space, and the right support.

The Corona Public Library focuses their once-a-week makerspace activities on creativity for young people. This includes the ability for youth in the space to decide what they would like to create using tools and materials available (including legos, vinyl cutters, button makers, and so on) and an activity, designed by library staff, in which youth have the opportunity to learn how to create something. (Figure 5 below shows a making activity focused on making with cardboard.) Staff provide young people directions on how to create the chosen activity for the day and volunteers and staff are available to answer questions and provide support. A struggle for Corona Public Library staff is having time in their own schedules to do more than a once-a-week craft activity in their makerspace. While the makerspace was designed for and with community,

staffing levels have taken a toll on the ability to maintain the activity as originally intended. Staff are currently working on ways to expand to activities and times beyond the once-a-week youth program.

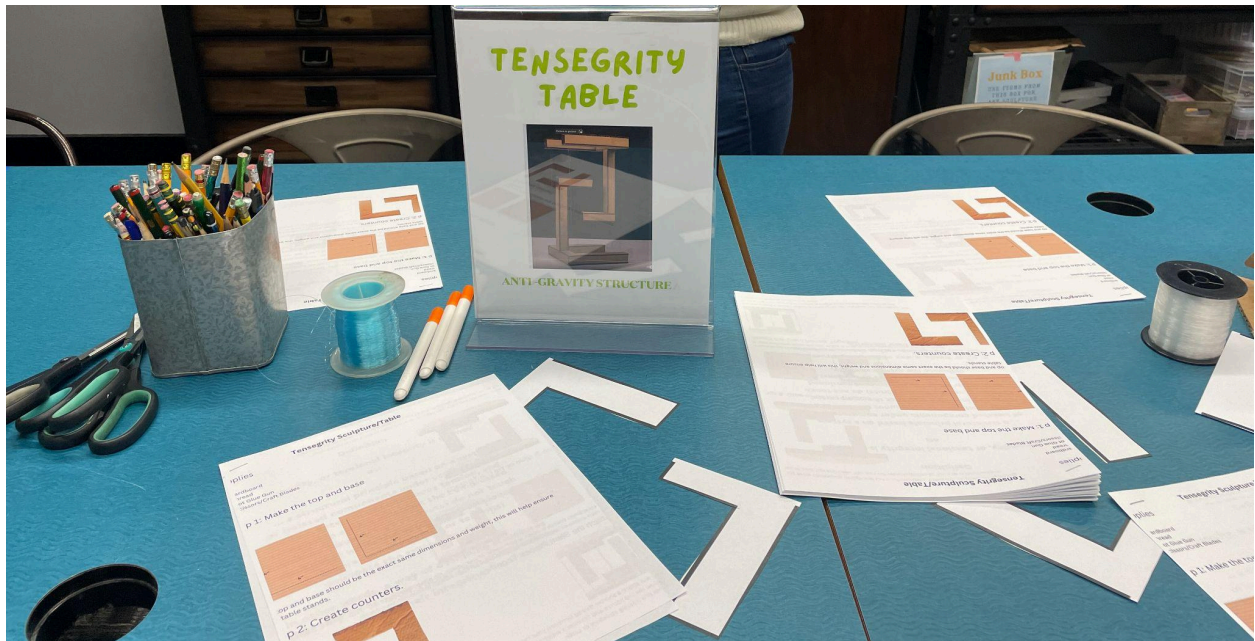


Figure 5: Corona Public Library making activity setup.

In Mono County the Library is testing out making activities for seniors. Library Director Christopher Platt notes, “Recognizing a couple of things: that our makerspace volunteers tend to be seniors and that we can offer both a space *and* an activity for seniors to engage with....we started this out of a recognition that we have a population of older folks who are creative and crafty and like to hang out over coffee (our county Behavioral Health has monthly senior coffee chat & hang sessions as well), and who are already connected to the library either from volunteering or because they are patrons.”

Goals

There is a great range of activities sponsored under the umbrella of making/makerspaces and while the variety can enable libraries to customize their activities to staff skill sets and interests, it also creates a challenge in building and supporting community- and equity-based making. Because libraries often see it necessary to focus on internal structures and needs, making outcomes are often set to the side. For example, if funding is limited then staff may find it easier to build making activities that are more easily implemented than what a stated makerspace goal is.

Survey respondents noted goals for their makerspaces as shown in figure 6 below. Responses under other include creating a community of makers (1), social learning (1), and learning how to use maker tools (1)

Makerspace Goals - What are the goals of your maker activities in-house, in the community, or circulated materials? (Select all that apply) - Selected Choice

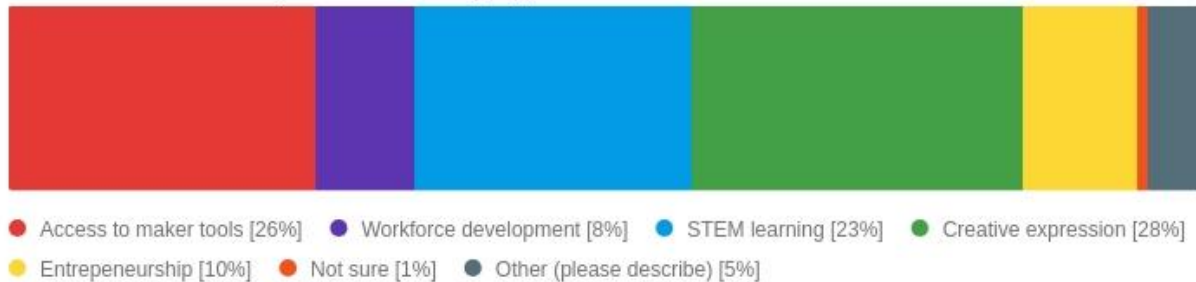


Figure 6: Survey responses on makerspace goals

In focus groups the goals of library making and makerspaces were described less concretely and centered on gaining skills, access to equipment, and serving a variety of age groups. Being able to focus on specific goals and designing makerspaces and activities around those goals creates stronger potential for sustainability and funding. If library staff are able to articulate to funders, vested partners, and community members what they would like to achieve through their making activities and makerspace, they will be more able to advocate for what is needed to reach intended goals.

Use

The use of makerspaces in California is often dependent on factors such as:

- Library staff relationships with community vested partners and members. Staff that have strong connections to organizations and people who already have a maker mindset and who are working towards maker goals has an impact on the use of library makerspaces and making activities. For example, the San Diego Public Library leverages several strong relationships with local organizations in the design and implementation of making activities and spaces. As a result, community members are more aware of the library's making activities as well as more likely to participate in the making activities.
- As noted in the spaces section below, the visibility of the makerspace within the library can have an impact on its use by community members. When the space is less visible library users either have to know about the space and intentionally look for it in the library, or a staff member has to inform the user about the availability of a makerspace and making activities.
- The goals of the makerspace and associated activities. Unless maker outcomes are clearly articulated to library staff and community vested partners and members, it is difficult for users to understand the value and purpose of the makerspace and associated activities. This also means that often maker activities do not come across as having a focus and as a result community members can be confused by what, when, and how making is available and why the library is prioritizing making.

Ultimately, makerspaces are most often used when there is a defined purpose for the space and the activities in that space. They are most often used when vested partners and community

members have a voice in the design and implementation of maker activities. And, they are most often used when library staff can articulate to the local community, colleagues, and leadership how the space and activities are helping to reach stated goals.

Staffing

The making/makerspace survey asked respondents to provide data on staffing. Figure 7 below shows how these spaces and activities are staffed. The predominant staffing model is library staff with volunteers providing the next highest level of staffing. The other category responses include interns (2), community organizations (1), and literacy department staff (1).

Survey responses that focused on staffing highlighted the challenges associated with training staff for working in makerspaces. “Makerspaces are inherently more difficult to staff; they require in-depth training in a specific subject that many library staff will not have right out the gate.”

Staffing - Who staffs your makerspace(s) or facilitates your maker activities - in the library or in the community (Select all that apply) - Selected Choice



Figure 7: Survey response, who staffs your makerspace

There are models for library staffing of makerspaces that are unique and that have the potential for re-imagining how libraries connect with and support the community as a part of maker related services. At the San Bernardino Library the literacy department fosters making and makerspace activities. A goal for the literacy coordinator, who also manages the maker program, is to create family literacy opportunities through making. Currently, low level literacy community members do not take part in making programs, yet the library is looking at making as a valuable opportunity for this group. This transition includes expanding the makerspace which will allow the library to move beyond one-off events. As noted in San Bernardino’s survey response, “...the program is expanding to a larger area where we will be able to be open more hours to the public and not just [host] one-off events....[and host] regular weekly events that tie into family literacy.”

Volunteers can be an important part of staffing of makerspaces. A Huntington Beach Library focus group participant described the library’s makerspace volunteers in this way, “...in our MakerSpace we have Makerspace coaches and usually they are specifically interested in one machine. They have an area of expertise around that. So we have a person that does the Cricut we have a couple people that do the laser engraver, a couple people that do 3D printing, and

then Ryan kind of knows a little bit about all of them.... They will train people on how to use the equipment and plan to be there when there's new people on that equipment as well. We usually have I would say [coaches] on most of our open hours.”

With both volunteers and paid library staff training is something that is noted as necessary in order to effectively run a makerspace and making activities. Staff training was one of the phrases added to the list of words thought of when thinking about makerspaces and one survey respondent wrote, “Librarians need training on technology and lessons on how to teach this technology to others to feel comfortable.” At the Corona Library 16 year olds can become volunteers and are required to go through a training program before officially taking on the makerspace volunteer role. At the Huntington Beach library makerspace coaches, “...Put in an application, a volunteer application.... Usually they're somebody who's been in the makerspace as a user for a while, and somebody's recruited them....if they're not familiar with that with the makerspace do an interview with them....We have to do an interview with them to see if that's a good fit, and then kind of find them a slot in the in the schedule.”

Spaces

Spaces of all different sizes and library locations are used for making. Figure 8 below shows that dedicated makerspaces and meeting rooms are most often used for making activities.

Area - Where in your building do your making activities take place - programs and/or dedicated space? (Select all that apply) - Selected Choice

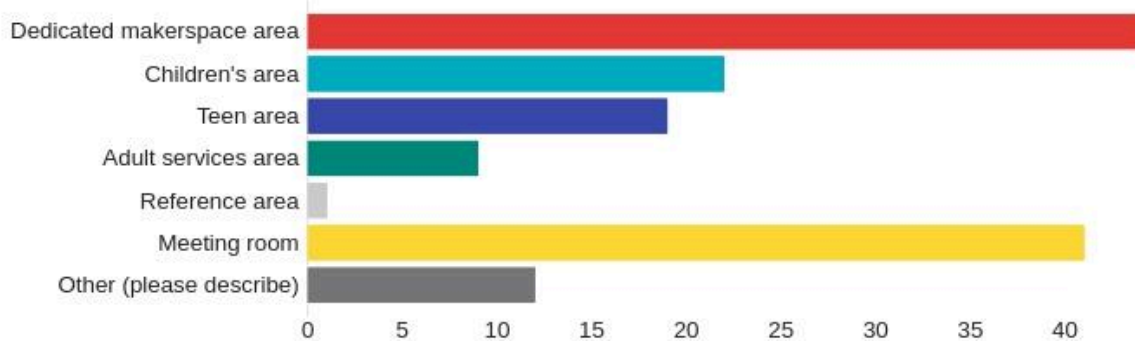


Figure 8: Survey response, where do your maker activities take place.

Other responses include at outreach events (1), in the programming area (1), and in the meeting room gallery (1).

In focus groups library staff talked about the amount of space that making can take up and the need to regulate how the space is being used, what can take place in the space, and where the space is located. At the San Diego Public Library the Central Library has moved the makerspace to a variety of locations in order to house equipment and best support the needs of community members. The Valencia/MLK branch of the San Diego Public Library is a large space that includes a computer room, recording/podcast studio, and separate spaces for a

variety of making activities. In Pasadena while their main library is undergoing retrofitting the makerspace moved to a teen area of one of the branches and the Library also is engaged in providing mobile making activities. In a focus group Pasadena library staff noted, “Our mobile maker activities have increased due to the iLab being closed, and it has some really great potential.”

The size of a makerspace is not the only factor in making decisions about where and what making activities take place. Pasadena staff mentioned the need to be aware of library exhaust systems as some equipment requires access to exhaust. Similarly library staff talked about the importance of having furniture that is flexible and mobile in order to reconfigure tables, chairs, and equipment to support specific maker activities. In some libraries the maker space is entirely mobile. One example is the Tulare Public Library that uses their meeting room space for maker activities. Library staff wheel materials and equipment in and out of the meeting room whenever making is happening. At the Corona Library staff mention the importance, even in a space that is dedicated to making, of having furniture on wheels to allow for unanticipated re-configuring.

Other potential areas for decision-making related to maker spaces include location within a library building. For example, at the Corona Library the makerspace is in a corner past the children’s department. While the space is conducive to making, the somewhat hidden location may make it difficult for those who aren’t intentionally looking for the space to know that it exists. At the Central Library in Sacramento, while the makerspace is not front and center in the building, when people encounter the space for the first time a look of amazement often comes over their face. When the space is discovered customers say things like, “Is this for anyone to use.” Staff encourage people to come into the space, try out the equipment, ask questions, and engage in conversation. One customer who had recently discovered the space noted that she was trying to figure out her career path and that once she found the space she was able to test out different possibilities from music recording, to virtual reality, to sewing.



Figure 9: Maker space examples: San Diego Public Central Library top left, Corona Public Library top right, Sacramento Public Central Library bottom left, San Diego Valencia/MLK Branch, bottom right

Rules

In focus groups and site visits it was clear that the rules associated with making activities vary and mindsets related to what is required in order to manage the use of equipment and spaces also varies. For example, there are rules related to how old children can be to use equipment - for example a 13 year old requirement for use of sewing machines. Libraries also implement rules that require users of makerspaces to show proof of having a library card prior to being able to use the makerspace. Some libraries require a staff member being present when equipment is in use, and often volunteers are not able to be in a space with equipment without a staff member in the room as well. In some locations a sign-in is required to use makerspace equipment. Figure 9 shows the rules posted outside the Corona Public Library makerspace.



- The Maker Exchange is open to patrons ages 10 and up. Children under 10 will not be permitted regardless of guardian or sibling participation. Patrons must sign-in and agree to the policies before using the makerspace. Certain materials are restricted for children under the age of 13. Guardians or caregivers may wait for children outside of Maker Exchange unless they have signed in and are working on a project for themselves.* **(Capacity is limited to 15 patrons!)** Guardians and caregivers are discouraged from completing projects for children.*
- Patrons must be respectful of other people's space and projects.
- Maker Exchange staff/volunteers will provide instruction/assistance but will not complete projects for patrons.
- Safety is our top priority when using the space. If you are unsure of how to use something, or it is your first time, ask for assistance. Never use a tool unless you've been trained to use it safely and as it was designed to be used. Never use a broken tool. Please report any broken tools or equipment to staff. Any sharp objects such as scissors and craft blades must be used safely. Any project must be done at a table unless otherwise directed by a staff member.
- If painting, any paint materials and projects must be kept to the designated painting table. Please clean your area after you are finished with your project. Materials must be returned to their proper location once used. General cleanup is done 10 minutes before the Maker Exchange closes. For any paint projects, cleanup is 30 minutes before the Maker Exchange closes. Wet canvas can be stored on the drying rack for later pick up. If you plan to claim your work, sign the back. Maker Exchange materials are designated to be used while in studio, unused materials are not to be taken home unless staff states otherwise. **Don't be wasteful of materials provided by the library.**
- Patrons may bring their own materials such as paper or 3D filament if they are intended for/compatible with the Maker Exchange equipment/tools that are available.
- Patrons may use a locker to store unfinished projects if one is available. Locks are not provided. Lockers will be emptied every 2 months on the last Tuesday of the month. Please check posted dates. Any projects that are left unclaimed, including those not in a locker, might be used as examples or be discarded. The library is not responsible for any damage to a patron's projects or files. Files stored on our devices may be deleted. Work must be saved to a personal external device if patrons wish to keep a copy.
- Patrons must follow the Library Code of Conduct including no food (drinks are allowed if sealed properly and away from electronics) and no disruptive behavior. **Patrons not following the Library Code of Conduct, Maker Exchange Rules of Conduct, or facility rules, will be asked to leave.**

***Accommodations will be made for those with disabilities.**

Figure 9: Corona Public Library Maker Rules of Conduct

Corona Library staff mention that the rules were put into place as a way to “manage the availability of the space.” Staff in other libraries mention that requiring a library card is a way to “upsell” having a card. Some libraries require an orientation session to be able to use equipment on one’s own and others have a line in their rules that state certain behaviors are required or if levels of behavior are not maintained, staff have the right to ask a user of the making equipment to leave.

Budgets and Funding

In focus groups and survey responses dedicated funding was noted as a great need for sustaining making and makerspaces. Focus group participants noted that the Library Foundation and/or Friends of the Library were frequent funders of making. These staff members also mentioned that they regularly seek out and apply for grants that support making and makerspaces. The Pasadena Public Library will begin to use collections funds for the first time to support making/makerspace activity and the Belvedere Tiburon Library has a budget for making/makerspace activities just like they do for other departments of the library. Other focus group participants mentioned that they don't have a budget specifically for making and makerspaces so they find money when and where they can. California State Library grants that provided LSTA funding for initial startup of library makerspaces were recognized as a valuable method for libraries to get started in these activities.

When library staff talk about funding makerspaces they also talk about what they would like to see happen with their making activities in the future. For example, one survey respondent wrote, "We hope to look for funding opportunities to create a space that feels separate and unique from the rest of the library. More specifically, we want the space to feel like its namesake, a lab retrofitted with research style tables meant for experimentation. We hope to add additional 3D printers in the next fiscal year to expand group classes on the technology."

Recommendations

The California five-year investment plan highlights the need to build community- and equity-based services across the state. Making activities and spaces present a perfect opportunity for libraries in California to reach communities experiencing marginalization. Many of the maker activities and spaces in the state are not yet focusing on community and equity-based maker services. The recommendations below take that into account and highlight ways to move forward with making activities and spaces in the state through an equity and community lens.

Community

- Build maker spaces and activities through a **community lens**. Ask who in the community - what neighborhoods and demographics - would best be served by making? Find out what the assets of those communities and groups living in those neighborhoods are and how the strengths identified can help library staff build making spaces and activities.
- Build maker spaces and activities on a **foundation of equity**. Ask, how are the library's making activities and spaces equitable? Consider how the library can go beyond having maker information in another language or bringing making materials to an outreach event in order to focus on communities of color and those who have experienced marginalization.
- Take time to **foster trust and relationships** in order to better understand and build community- and equity-based maker spaces and activities. Be careful to not make

assumptions about what different communities would find interesting and fun and take time to go into those communities to talk about making and to learn where creativity, skills development, and entrepreneurship are possible.

- **Communicate with current library users** who use the library for different purposes. For example, talk with those who take part in literacy services about the potential for engaging them in making activities. Or, talk with those who use the library for health information about how making might help them in their life or work.

Staffing

- Harness the **expertise of community members** in order to rely less on training and hiring library staff with skills needed to facilitate making activities and spaces. Volunteers and staff who come from the community and who represent different populations ethnically and racially, will bring a necessary level of understanding and relationship to making activities and spaces facilitated by the library.
- Create **job descriptions** for all levels of making staff from teen volunteers to adult volunteers to all levels of library staff. Clearly define what the roles and responsibilities are for staff who participate in and/or facilitate making activities and spaces.
- Expand ideas about **departments from which staff** involved in making and maker spaces should come. Explore staff skills and interests to identify departments from which maker staffing may come.
- Learn about **maker mindsets** and how those mindsets can help library staff design and implement activities with making, community, and equity at the center. Include in job descriptions the skills needed in order to foster maker mindsets through library making activities and spaces.

Goals/Outcomes

- Build understanding about **maker mindsets** and reflect on how those mindsets can inform making and makerspace goals and decision-making.
- Create **achievable goals** for making activities and spaces and make all decisions related to making based on those goals. New making activities and spaces should all be designed and created as a way to reach stated goals.
- Create **prototypes and models** to demonstrate the makerspace's potential, particularly for skeptical colleagues and decision-makers.
- Develop **assessment strategies**, tools, and protocols that specifically align with stated goals and intended outcomes

Use

- Design **use case scenarios** that take into account the goals and outcomes defined by library staff, community members, and vested partners. Ensure that all making activities and resources enable community members to use the space in ways that reflect specific challenges and strengths within the community.

- **Evaluate when** the makerspace and making activities are **available**. Ask if the times of day, days of the week, etc. are reflective of the community that is being targeted. Consider if library staff need to rethink working hours and staffing models in order to build and sustain community usage.
- **Engage with vested partners and community members** to help to build participation in and usage of making through the library. Leverage the strengths of the community to assist in designing maker-based services, talking with community members about what is available, and facilitating making through the library.

Space

- Create flexible maker space designs to support different making opportunities and changes in making technologies. Furniture that is easily moved helps create spaces that are conducive to different communities and activities.
- Consider the location of the makerspace through the lens of makerspace goals. Ask, is our makerspace location making it possible to reach our goals or should we move to a different location in order to reach specific communities and goals?

Rules

- Design maker activities and space **rules** that focus on supporting the needs of the community over the needs of the library. For example, if a library card is required to use maker materials and spaces, ask does that serve the library or the community? Ask, why do we have these rules and are there other avenues to try in order to build a more welcoming environment?

Funding

- Build making activity and spaces **funding streams** so that it is possible to sustain making and to demonstrate a commitment to making through the library. Work with staff and community members to determine what the annual costs for making should be and how to ensure funds are available. Funding areas may include staffing (including stipends for teens or other interns/volunteers), supplies, equipment, and furniture.
- **Identify grants** beyond those provided through the California State Library, the library foundation, and the friends of the library.

Conclusion

By strategically implementing these recommendations, California's public libraries can harness the power of making to build stronger, more creative communities across the state. Continued conversation, goal identification, and fostering of best practices will aid in achieving that goal.