

# TeenHub Makerspace User Guide & Inventory

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## 1. What Is a Makerspace?

A Makerspace is defined as a collaborative work space for making, learning, exploring and sharing personal and group creative projects – from art to engineering, and more! (<https://www.makerspaces.com/what-is-a-makerspace/>)

The TeenHub Makerspace is an educational space for teen library users to engage with technology and tools they may otherwise lack access to, in order to create their own projects and engage in a variety of S.T.E.A.M. fields (Science, Technology, Engineering, Art, Mathematics).

Teens can utilize materials like illustration supplies, stationary and creative writing tools, bike-repair kits, beading and jewelry making supplies, circuit-building kits, LEGOs, 3-D Printing software, knitting, crocheting, sewing equipment and more! As teens explore their pre-existing creative interests, they may discover entirely new fields that they connect with; this Makerspace is a wonderful place to try something new, broaden your horizons, and have fun!

Teens will need an active library card or a school ID to sign in – ask your parent or guardian about getting a library card today!

## 2. How to Use the TeenHub Makerspace

### Signing In:

Teen Users will present their library card or ID to a CCJPL staff member at the TeenHub Desk to sign-in to the space and will receive their card back upon sign-out.

If you do not have a school/photo ID, you will need to ask your parent or guardian about getting a library card before using the Makerspace.

### Makerspace Hours

The Makerspace opens 30 minutes after the library opens and closes no later than **30 minutes before the library closes.**

Makerspace Open and Close times are subject to change.

Walk-in use of equipment in the Makerspace is on a first-come, first-served basis. Limited staff assistance will be available during CCJPL hours.

## Makerspace Projects

- All projects created within the Makerspace must respect the intellectual property of others and follow all U.S. copyright laws.
- Patrons may not utilize the Makerspace for any type of commercial use. Selling of items created in the Makerspace is not permitted.
- Users may not use Makerspace equipment to create objects that endanger themselves or others. Staff have the right to refuse any project.

## Makerspace Material Considerations

- Free materials are a courtesy provided by CCJPL. We cannot guarantee the availability of any materials at any time.
- 3-D Printer Filament is available for a fee.

## Terms of Use:

- Access to these materials and their usage by teens is the responsibility of the parent or guardian.
- All library tools, materials, and equipment (except finished artwork) are not to be removed from the Makerspace Area. Removing Makerspace materials from this library may result in an indefinite suspension of one's ability to use the Makerspace.

(continued on next page)

- Users are responsible for putting away all materials used in their proper places and cleaning up after themselves. Please ask if you require assistance.
- No horseplay in the Makerspace Area or misuse of equipment. Do not risk injury to yourself or others.
- If you are unsure of how to use a tool or piece of equipment, you must get staff assistance before attempting to use the item.  
Follow safety guidelines for all tools and equipment.
- Please be mindful of your language and volume. Profanity, rude language, and shouting will not be tolerated.
- Use of the 3-D Printer always requires supervision from library staff.
- Users are expected to adhere to the CCJPL Code of Conduct. *Those who do not adhere to the Code of Conduct may have their ability to use the Makerspace suspended or may lose their Makerspace access privileges permanently.*

*Makerspace Guidelines Adapted from:*

Miami University's Makerspace Policies and Procedures

Nagle, S. (n.d.). Subject & Course Guides: Makerspace: Policies and Procedures. Libguides.lib.miamioh.edu. Retrieved February 13, 2024, from

<https://libguides.lib.miamioh.edu/create/makerspace/policies>

### 3. Safety in the Makerspace ⚠️

#### General Safety

- Secure all scarves, neckties, loose-fitting clothing, long hair, or jewelry when using machinery in the Makerspace. These things can be caught in equipment and cause injury.
- Keep hands and arms away from machinery during operation.
- Never use a broken tool or machine.
- If you notice a tool or machine is broken, inform a staff member right away.
- Keep the floor clear of clutter, personal belongings, wires, and all tripping hazards.
- If you are unsure about how to safely operate machines or equipment, ask a staff member.
- Safety goggles and gloves are available for your use. It is your responsibility to use the proper safety equipment for your project.

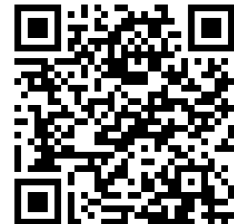
Not sure what to use? Just ask!

## Machine-Specific Safety Considerations

Please refer to the User Manual for each machine for more detailed safety guidelines. Scan the corresponding QR Codes for these full manuals. You may also ask the Teen Librarian to see a full manual.

### 3D Printer

- Use of the 3-D Printer always requires supervision from library staff.
- 3-D Printers have hot parts that may burn your skin. Do not touch the extruder head or the print bed after turning on the machine.
- Use safety gloves when removing prints from the 3D printer bed. Always point the scraper away from your body when removing prints.



### Sewing Machines

- Power the sewing machines off before changing needles, replacing bobbin, or any tasks that require your hands to be near the sewing area.
- Never sew over pins or buttons.
- Always pay attention and keep hands clear of the feeder and needles while sewing.



## General Tools

- Never use tools in ways they are not intended to be used.
- Do not “lend” tools to those who are not signed into the space.

You are responsible for the equipment you are using while signed into the Makerspace.

- Keep metal tools away from sources of electricity.
- Do not use any tool as a weapon, even in play.
- Do not throw anything or run in the Makerspace.
- Put all materials back where you found them after use.
- If you need assistance, or notice that another user needs help, please notify a staff member.
- If you are injured or otherwise require first-aid, please notify a staff member immediately.

*Safety Guidelines Adapted from:*

Miami University's Makerspace Safety Guidelines

Nagle, S. (n.d.). Subject & Course Guides: Makerspace: Policies and Procedures. Libguides.lib.miamioh.edu. Retrieved February 13, 2024, from

<https://libguides.lib.miamioh.edu/create/makerspace/policies>

## 4. Makerspace FAQ

Before you sign-in to use the Makerspace, here are some Frequently Asked Questions and answers:

- Is there an age requirement for users?
  - You must be between the ages of 13 & 17 to use the Makerspace and its equipment.
- Is it free?
  - The makerspace supplies provided by CCJPL are free to use for the most part, with a few exceptions:
    - 3-D Printer Filament costs a fee per gram, to be paid before printing. This fee will be posted near the 3-D Printer and is subject to change.
    - No tools may be removed from the Makerspace. For example, tools like pens and scissors are free to use, but we ask that you leave them here after you're finished using them – supplies don't leave the library, only your artwork does.
    - Supplies are not to be hoarded or wasted - don't take extra materials home with you; leave them here for all users.
    - You are expected to share the supplies and the space with other users.

- Can I bring my own materials and projects to work on at the Makerspace?

- Yes and no. Most materials (like paper, pencils, etc.) are alright but there are a few exceptions:
- Users may **not** bring their own filament for use with the 3-D Printer.
- Users may not bring their own power tools, or any tool that could be considered a weapon. If you are unsure about a tool you'd like to bring, ask a staff member if it's OK **before** bringing it.
- If the materials might be messy (like paint, clay, etc.) please check with a staff member first before using them. If approved, ensure the workspace is protected with a table cloth or the like before proceeding. It is your responsibility to clean up after yourself.

## 5. What's In the Makerspace?

For a guide to the types of equipment housed in the makerspace, please refer to the following inventory lists:

### Blue Workbench

- 3-D Printer
- 3-D Printing Supplies
- 3-D Pens & Filament
- Beading & Jewelry-Making
- Crochet, Knitting, & Sewing
- Yarn
- Miscellaneous Makerspace Tools and Games
- Circuits & Electronics
- Painting/Mixed Media
- Crafting, Engineering, & Design

### S.T.E.A.M. Table

- Stationery/Journaling
- Creative Writing/Pencil Illustration
- Traditional Illustration
- Crafting
- *Interior: Legos, Bead Bin, Fiber Arts Bin, Yarn Overflow, Coloring Pages, Tablecloth*

(See next page for more detail.)

## Makerspace Inventory List: STEAM Table

- STATIONERY/  
JOURNALING

- Patterned  
Scrapbook Paper
- Highlighters and  
Washi Tape
- Letter Sets
- Cardstock

- CREATIVE  
WRITING/PENCIL  
ILLUSTRATION

- Gel Pens
- Pencils
- Illustration  
Supplies
- Drawing/  
Multimedia Paper

- TRADITIONAL  
ILLUSTRATION

- Permanent  
Markers
- Ink Pens
- Illustration  
Markers
- Drawing/  
Multimedia Paper

- CRAFTING

- Lined Paper
- Misc. Crafting Tools  
(scissors, glue,  
tape, etc.)
- Craft Foam
- Construction Paper

## 6. Makerspace Overflow Equipment

Several kits & tools are in storage, available upon request.

### Here is a list of available Overflow Equipment:

- Janome Sewing Machines + Bobbins of Thread
- Fabric Scissors
- Lino Printmaking Kits
- Hot Glue
- Standard Claw Hammer
- Ball-Peen Hammer
- 9 pc Hollow Punch Set
- 36 pc ¼" Steel Stamping Set
- Rotary Tool Kit & Rotary Accessory Kit
- Jumbo Magnifying Glass
- 5 Pc Magnifying Eye Loupe Set
- "Helping Hands" Mini Clamp and Magnifier
- 12 pc Screwdriver Set (Slotted & Phillips)
- Screwdriver with Interchangeable Head
- 6 pc Pliers Set
- 3 pc Hex Keys Set
- 6 pc Stainless Steel Tweezers
- 11 pc Woodcarving Set + 6 Pc Carving Set
- Scratch Awl
- Cordless Micro Engraver
- 8" x 12" Carpenter's Square (90° Angle Ruler)
- 8 pc Watch Repair Kit
- A Level
- Japanese Screw Punch Kit (for bookbinding or leatherworking)
- Sandpaper (Assorted Grits)

## 7. 3-D Printer User Guide

### How to Start 3-D Printing

To use the 3-D printer, you should first have a specific file to print. There are many free digital libraries of 3-D printable files, such as Thingiverse and TinkerCAD. You may download your files to a flash drive to use on the computer with the 3-D printer. If you're pulling up the file to print digitally, make sure you send the file to yourself ahead of time via email, so it can be more easily downloaded. Load the file into the Lulzbot Software, Cura.

*Ensure all 3-D print files are saved as an .STL file.*

You'll want to get staff approval before printing, to ensure there are no problems with your intended print job, and to pay for the filament that you will be using. **You must pay the estimated cost before printing.** If you begin a print without staff permission, or without paying, your print job may be terminated by staff.

Ensure the 3-D Printer is fully heated to the proper temperature and settings. Then click "Extrude 10" (as necessary) until you see a consistent stream of filament being pushed out by the extruder. Checking the extruder's performance before beginning your print is a necessary step to help reduce the chance of print failure. Wait about a minute to let any extruded filament cool, and then remove from the bed with tweezers to discard. **Do not touch the extruded filament, bed, or any other internal machinery at this state with your bare hands, as it may be hot.**

With the print bed cleared, you are ready to begin your print job. Once your print job begins, you must stay to monitor its progress for at least the first 15 minutes. If the print fails within the first 15 minutes or at any time in the printing process, you should check with staff before attempting a reprint. (If staff notices a print is failing, the print job may be terminated.) You cannot be refunded for failed prints. Please keep this in mind if you fear your model might be at risk of failing.

Once your print job is complete, allow everything time to cool completely before attempting to remove your print from the print bed with a scraper. When the print is finished cooling, the print bed will automatically move forward to indicate that the print is ready to be removed. Wear protective gloves when handling finished prints and the scraper. Always face the scraper away from you when removing a print from the print bed and separate your print from the bed gently, working from the outside in, so as not to damage the bed or the print.

Never touch the interior machinery or extruder head, even after the print bed is cooled as these upper elements may still be hot.

Let staff know when you are finished so that all machinery may be properly cleaned and turned off.

Enjoy your completed print!

*(Please review the Lulzbot Mini Quick Start Guide and Full Manual for more detailed directions.)*

## 3-D Printing FAQs

### How to Queue in Line?

In order to use the 3-D Printer, you must be signed into the Makerspace. The 3-D Printer Queue Sheet is located near the 3-D Printer - sign your name and a description of your print job, plus its estimated time of completion once the print has begun. You may only sign up for one print job at a time. If someone is already using the printer, you can sign up in the slot after theirs, time allowing. If you are not present at the time of their print's completion however, you may forfeit this timeslot if other users are waiting. You can only sign up for the current day and cannot request timeslots in advance without express staff permission. If your print job's duration is estimated to pass 30 minutes before CCJPL's closing time, you will not be able to begin the print at that time.

### 3-D Printing Limits

The generally acceptable booking time for 3-D printing is 4 hours or less. Prints longer than this may be rejected by staff if there is a risk that materials on hand are insufficient. Prints must be monitored by users for at least 15 minutes prior to leaving them unattended. Prints may **never** exceed 8 hours in print time.

**All print jobs must be approved by Makerspace staff.**

Makerspace staff reserves the right to stop a print if approval was not obtained or if the print is at risk of failing.

## Can I bring my own 3-D Printer filament?

- No; this 3-D printer requires filament of only certain types and specifications. In order to minimize filament misuse and waste, we ask that users do not bring their own 3-D filament of any type. Filament will be provided by CCJPL for a fee.

## Is there anything I can't print?

- All projects created within the Makerspace must respect the intellectual property of others and follow all U.S. copyright laws.
- Patrons may not utilize the Makerspace for any type of commercial use. Selling of items created in the Makerspace is not permitted.
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## 8. Can I Suggest Additions to the Makerspace?

Yes! Teen users can suggest Makerspace tools and equipment they'd like to see in the future by filling out a suggestion form, located on the STEAM Table.

We will try to provide materials and tools to support new and continued interests from our users as we are able.