Index

Makerspace Getting Started Guides

Note: Before scheduling time with this piece of equipment **please ensure you have received training from a member of the Makerspace staff or certified volunteers**. Requests from patrons who have not received prior training by the Makerspace staff/certified volunteers will not be accepted.

General Makerspace room reminders:

1. Open toed shoes are not allowed while working in the Makerspace.
2. Service animals are permitted, **all other pets/animals are not allowed in the Makerspace.**
3. Children **under the age of 10 are not allowed** in the space.
4. Youth between 10-16 may use the space under the direct supervision of a parent/guardian who has completed a training session with the Makerspace staff. **Limit one youth per Adult.**
5. Your reservation is not approved until a Makerspace staff member reviews it. If you have not been notified of your approval within 24 hours of your appointment please contact our staff at cossittlibrary@granby-ct.gov or call us at **(860) 844-5275**. Have your equipment reservation date and time ready to share with us!
6. Please follow the guidelines of the Patron Equipment Use Agreement and the Patron Code of Conduct while in the Makerspace. Failure to follow these guidelines will result in limited future access to the Makerspace.
7. Use of the Makerspace is **FREE** but some consumables are sold at cost. View our current price list here. *(As of February 12, 2025, prices subject to change, offered while supplies last)*

Makerspace Age Requirements

Note: Makerspace programs are restricted to the designated age description.

- No children under the age of 10 is permitted in the Makerspace
- Ages 10-15: May attend Equipment Training Classes/Demos and MUST have an adult present with them. Adult and Youth sign up individually.
- Ages 10-17: Must have a signed waiver by their parent/guardian.
- Ages 16+: May attend Equipment Training Classes/Demos and CCS programs independently.

Equipment Index

For best results and for continued access to the Makerspace please ensure you're following our three steps explained for each device on their respective Getting Started pages.

Bambu Lab P1S 3D Printer

Getting Started Guide

Bambu Lab P1S 3D Printer

Table of Contents

About our Printers

The **Bambu Lab P1S 3D Printer** is a "PLA" printer which can print shapes up to 10.08" x 10.08" x 10.08" in. (256.00 x 256.00 x 256.00 mm).

Use a 3D Printer to create three dimensional objects to benefit your life such as light switch covers with built in hooks for keys, water bottle holder converters for your car, or fidget devices for your anxiety.

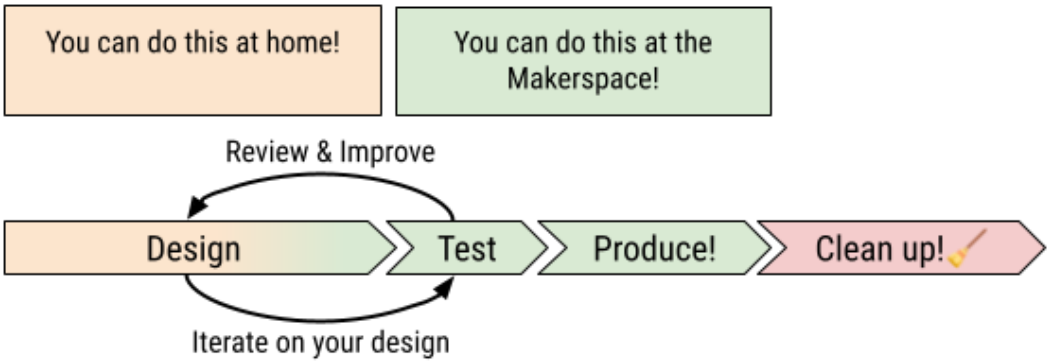
About "PLA" filament:

- Polylactic Acid (PLA) filament is **a recyclable, natural thermoplastic polyester that is derived from renewable resources such as corn starch or sugar cane**. The filament is biodegradable under certain conditions with high heat capacity and high mechanical strength.




The Three Step Process

We want you to have a successful time in our MakerSpace and that means helping all patrons be as prepared as they can prior to their arrival. There's so much you can do in the comfort of your home. With this guide we hope to equip you with as much information as you need! As such we've separated this guide into three sections: "Before you arrive", "During your visit," and "Clean up." Some things you can do before you arrive so your reservation window is best used for testing and not designing.



Step 1 - Preparing for your visit

Designing your project

1. Save time at the Printer by browsing for a pre-made design or create your own design at home prior to your visit.
    a. Download a pre-made design from a site like:
        i. Thingiverse
        ii. Printables
        iii. MyMiniFactory

        iv. Makerworld
    b. Create your own designs with programs such as:
        i. Tinkercad (a free program run in your internet browser)
        ii. Autodesk (A more professional program with a cost associated)
        iii. Solidworks (A more professional program with a cost associated)
2. Tweak your design by installing the Bambu Studio software for PC or Mobile.
    a. Can you optimize print time and filament usage prior to arrival?
3. Bring your STL files on a USB 2.0 or 3.0 memory card for quick transfer to our PCs.

Step 2 - While you're here

1. Work on our computer and the installed Bambu Studio software or bring your own!
2. Our MakerSpace technician is here to help optimize your print, load any filament colors you need, and if needed schedule a time to print more complicated prints.
3. Pay for any prints you make prior to submission of your job. There are no refunds for failed prints.

How to work with the Station

Step 1: Download a Free 3D Model File

1. **Visit a 3D Model Repository**: Go to websites like **Thingiverse** (thingiverse.com), **Printables** (printables.com), or **MyMiniFactory** (myminifactory.com) to find a free 3D model.
2. **Search for a Model**: Use the search function to find a model you'd like to print (e.g., a simple keychain, figurine, or gadget).
3. **Download the File**: Once you've found a model, download the STL file (standard file format for 3D printing).

Step 2: Open the File in Bambu Studio

1. **Open Bambu Studio**: Launch the software on your computer.
2. **Import the 3D Model**:
    - Click the "+" button or drag and drop the downloaded **STL file** into the Bambu Studio workspace.
3. **Orient and Scale**: Use the tools in the software to adjust the orientation, size, and placement of the model if necessary.

Step 3: Select Print Settings

1. **Choose the Printer Profile**: In Bambu Studio, select the **Bambu Lab P1S** as your printer model.

2. **Select the Material**: Choose the filament type you've loaded into the printer (e.g., PLA, ABS, PETG). This will automatically adjust the temperature and speed settings for optimal results.
3. **Choose Print Quality**: Select the quality level (e.g., Draft, Standard, or High Quality). Higher quality takes longer but produces finer details.
4. **Enable Supports or Rafts (Optional)**: If your model has overhangs or complex parts, enable supports or rafts from the settings.

Step 4: Slice the Model

1. **Click "Slice"**: Press the **Slice** button to convert the 3D model into G-code, which tells the printer how to build the object layer by layer.
2. **Preview the Layers**: Once sliced, review the print layers in the preview mode to make sure everything looks correct.

Step 5: Send the File to the Printer

1. **Connect to Your Bambu Lab P1S**:
    - Alternatively, save the file to an SD card or USB drive.
2. **Transfer the File**:
    - For SD card or USB: Save the G-code file onto the storage device, insert it into the printer, and select the file from the printer's interface.

Step 6: Start Printing

1. **Begin the Print**: Once the file is sent, the P1S will automatically start heating the nozzle and bed. Once heated, it will begin printing.
2. **Monitor the Print**: Keep an eye on the print for the first few layers to ensure the filament is sticking to the bed properly. If using the Bambu Lab AMS (Automatic Material System), make sure the correct filament is selected.

Step 7: Remove and Clean the Print

1. **Wait for the Print to Finish**: Once the print is complete, let the printer cool down before removing the object.
2. **Remove the Model**: Gently remove the print from the bed by using a scraper tool, if necessary.
3. **Post-Process (Optional)**: Trim away any supports or rafts, and clean the edges if needed.

Step 8: Celebrate Your Success!

- Congratulations! You've successfully printed a 3D model using your Bambu Lab P1S. You can now experiment with different designs, filaments, and settings to create more complex projects.

Step 3 - All Finished? Clean up your space.

After Every Print:

1. **Clean the Print Surface:**
    - After each print, gently remove any leftover filament or residue from the print bed.
    - Use isopropyl alcohol and a soft cloth to wipe down the surface to ensure proper adhesion for the next print.
2. **Check for Filament Debris:**
    - Inspect the area around the extruder and nozzle for any stray filament pieces or debris that might clog the printer.
    - Use a small brush or compressed air to clean out any fine particles.
3. Sign out of any accounts you logged into while using our computers.
4. Remember to take your USB sticks with you.

Notes:

- The 3D printer builds your design by layering material from the bottom up, slice by slice. In the XXX window, you can use a vertical sub-window to adjust settings like the thickness of specific design layers.
    - For example, when printing a keychain, you might want the top surface to be yellow and the cutouts for details like a name or phone number to appear in black. To achieve this, stack two keychain designs—one on top of the other. The top layer will have the cutouts and print in yellow, while the bottom layer remains blank and prints in black. If the cutouts aren't deep enough to expose the black layer below, use the vertical slice window to adjust the thickness of the top layer by removing slices under the cutout areas. This will ensure the bottom layer's color shows through.

Brother Sublimation

Getting Started Guide

Brother Sublimation Printer

Table of Contents

About our Printer

The **Brother Sublimation Printer SP-1** is an ink-based printer which uses Sublimation paper to transfer complex art to 'blanks' such as mugs, puzzles, shirts, etc.

About our Heat-transfer presses

We have a variety of Heat-transfer presses for your projects. Each has an area where they excel. It is important to match the device to your project. Pictured are the Heat Presses by Cricut but we also have other presses for other types of jobs. Reach out to us for specifics.


cricut
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cricut

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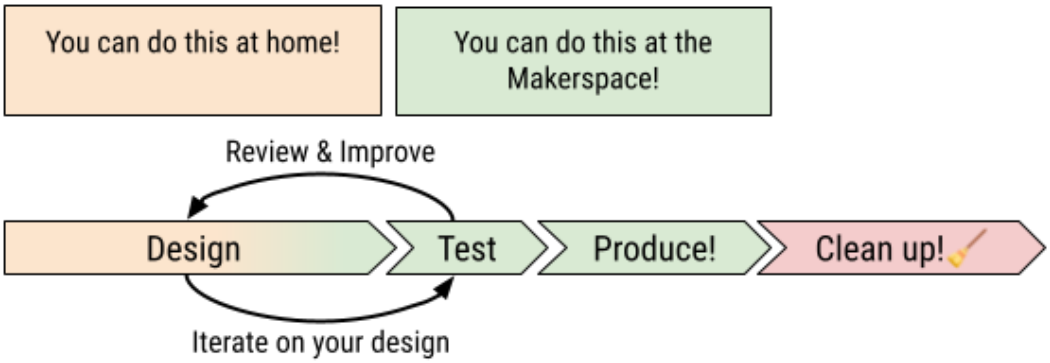

Step 1 - Preparing for your visit

Designing your project

4. Subscribe to Jennifer Maker on YouTube. She has a lot of great content for Sublimation projects
5. Identify the area to which you will transfer your design to such as a puzzle that is 8.5" x 8.5" - ensure your art matches that size in your chosen program. *(When you sign up for training we can show you this!)*
6. Design your work at home using any graphic design program such as Photopea or any Slides program such as Microsoft Power Point *(using your Microsoft Account)* or Google Slides *(using your Google Account)*.
7. Bring your files on a USB 2.0 or 3.0 memory card for quick transfer to our PCs.

Step 2 - While you're here

4. Work on our computer connected to the Brother Sublimation printer
5. Our MakerSpace technician is here to help optimize your design,
6. Pay for any prints you make prior to submission of your job. There are no refunds for failed prints.

How to work with the Station

Step 1 - Printing your Artwork for sublimation heat transfer

- Our Computer which is connected to the Sublimation printer has premade templates in PowerPoint for each of the blanks we stock:

Blank	Max size of Art	Temperature and Time for heat transfer	Work from Home Starting Templates
11oz ceramic mug	9.5" x 3.5"	"Ceramic Coffee Mug" 190 sec @ 385F	Google Slides | Canva
15oz ceramic mug	9.5" x 4"		Google Slides | Canva
Hardboard Tiles for Magnets	2.875" x 2.125"	"Hardboard Tile" 45-60 sec @ 385F	Google Slides | Canva
Puzzle (120 piece)	11" x 7.75"	Pre-press puzzle at 40 sec @ 370F to remove moisture "Jigsaw Puzzle" 40 sec @ 385F (apply extra pressure)	Google Slides | Canva
Puzzle (20 piece)	7.75" x 5.75"		Google Slides | Canva
Water bottle tumbler	9.375" x 8"	"Aluminum Water Bottle" 45-60 sec @ 365F - 400F	Google Slides | Canva
White glazed ceramic tile coaster	3.75" x 3.75"	"Ceramic Tiles" 6-8 min @ 385F	Google Slides | Canva
Car Cup Holder Coasters (Circle)	2.8" x 2.8"	"Mouse Pad" 40 sec @ 400F	Google Slides | Canva

- If you have made your own graphic

    - Open the file and select print. Ensure your artwork matches the measured area of your blank.
- If you would like to work with our premade templates
    - Open the template in Microsoft Powerpoint and “Insert” -> “Image” to place any existing artwork.
    - Use PowerPoint to add any other clipart or text to complete your composition.
    - Select Print

Step 2 - Using our equipment to transfer your printout to your blank

1. Select the appropriate Press for your project:
    a. Large/Small heat press for flat projects such as cardboard or fabric
    b. Mug press - 11oz and 15oz mugs
    c. Tumbler press - Water bottles
    d. Etc
2. Find the appropriate temperature and duration for your blank
    a. Example: Cardboard puzzle = 400 fahrenheit for 40 seconds.
3. Use Heat resistant tape to secure your print to your blank (Ink side facing your blank).
4. Place Heat resistant sheets above and below your project when appropriate to protect against ink transfer onto the equipment.
5. Verify with the Makerspace technician everything is placed properly prior to beginning heat transfer.

Make Cricut Jigsaw Puzzles

Quick Guide to Making a Puzzle with a Cricut

https://www.wikihow.com/Make-a-Puzzle-with-Cricut

1. Open Cricut Design Space on your computer and choose a puzzle design.
2. Upload the picture you want to turn into a puzzle & attach it to the puzzle design.
3. Print the puzzle picture onto vinyl or sticker paper & attach it to cardboard or chipboard.
4. Select "cardboard" or "chipboard" as the base material for your puzzle in Design Space.
5. Tape the puzzle picture to your Cricut mat & attach the blade to the machine.
6. Press the "Go" button to start cutting out your puzzle pieces.

** **Make Picture Puzzles on Cricut (+ a Hidden Message Puzzle!),** JenniferMaker, https://jennifermaker.com/make-picture-puzzles-cricut/. Includes material suggestions, video instructions, and explains how to print then cut.

Material suggestions

- Printable sticker paper (8.5" x 11" full sheet) or printable vinyl, e.g. Staples brand of full sheet sticker paper and Light chipboard or Kraft board

- 12 Pack 1/8" Thick MDF Wood Sheets Bulk - White Sublimation Hardboard Blanks for Cricut, Clipboard, Ornament, and Bulk Sublimation Blanks, $50, Amazon.com, Link.

Step 3 - All Finished? Clean up your space.

After Every Project:

1. Return Heat Papers back to holder
2. Turn off all Heat Presses used.
3. Throw away all scrap paper from the cutting board.
4. Sign out of any accounts you logged into while using our computers.
5. Remember to take your USB sticks with you.

Notes:

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Cricut Maker

Getting Started Guide

Cricut Maker Cutting Machine

Table of Contents

About our Cricut Maker Cutting Machine

The **Cricut Maker Cutting Machine** makes smart cutting machines that work with an easy-to-learn design app, so you can express your creativity and make personalized items for any and every occasion.

The Cricut enables intricate cutting, drawing, and scoring of materials like vinyl, paper, and fabric, while sublimation printing allows for vibrant, long-lasting designs on mugs, shirts, and other items. Users can upload or create their own digital designs, cut or print them, and transfer them onto various surfaces, making this station perfect for crafting custom apparel, gifts, or promotional items. It's a versatile space for DIY enthusiasts and small business creators alike.

This Station has:

- 2 Windows laptops with Cricut Software
- Cricut Maker Cutting Machine
- Brother Sublimation Printer SP1
- Cricut heat press, hat press and mini press
- Large Shirt Press

- Tumbler Heat Press

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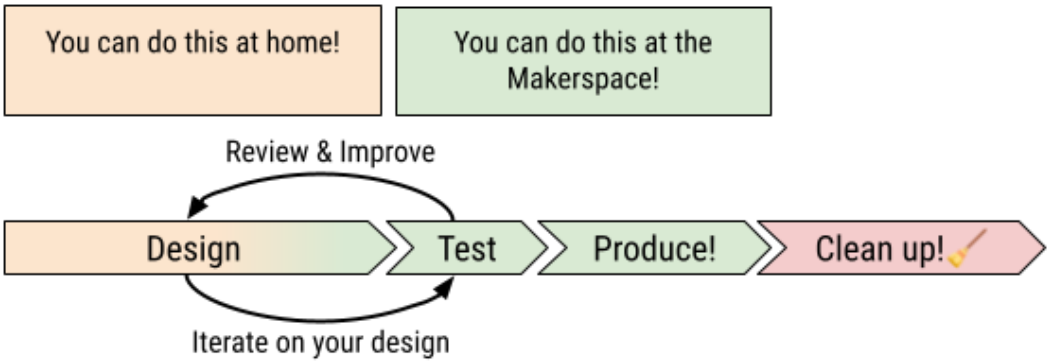

Step 1 - Preparing for your visit

Designing your project

1. Subscribe to Jennifer Maker on YouTube. She has a lot of great content for Cricut projects!
2. On your home computer download, install, and create an account for the Cricut Design Space software. With this you can access the Cricut's marketplace, design interface, and begin working on your designs with text, images, clip art, etc.
3. Identify the product you would like to design for and begin to design!
    a. If you are designing for any of our sublimation blanks here are the dimensions to keep in mind. Please remember our stock is ever fluctuating.
4.

Blank	Max size of Art	Temperature and Time for heat transfer	Work from Home Starting Templates
11oz ceramic mug	9.5" x 3.5"	"Ceramic Coffee Mug" 190 sec @ 385F	Google Slides | Canva
15oz ceramic mug	9.5" x 4"		Google Slides | Canva
Hardboard Tiles for Magnets	2.875" x 2.125"	"Hardboard Tile" 45-60 sec @ 385F	Google Slides | Canva
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White glazed ceramic tile coaster	3.75" x 3.75"	"Ceramic Tiles" 6-8 min @ 385F	Google Slides | Canva
Car Cup Holder Coasters (Circle)	2.8" x 2.8"	"Mouse Pad" 40 sec @ 400F	Google Slides | Canva

Step 2 - While you're here

1. Work on our computer connected to the Cricut Cutting Machine
2. If you have your own account with Cricut Design Space log in and prepare your test.
3. Our MakerSpace technician is here to help optimize your design.
4. Pay for any materials you use prior to submission of your job. There are no refunds for failed projects.

How to work with the Station

What You'll Need:

- **Cricut**
- **Cricut Design Space** software
- **Free image** file (such as SVG, PNG, or JPEG)
- **Material to cut** (vinyl, cardstock, fabric, etc.)
- **Cutting mat** (appropriate for your material)
- **Weeding tool** (for vinyl projects)
- **Transfer tape** (for vinyl projects, if applicable)

Step 1: Set Up the Cricut Machine

1. **Power On the Cricut Machine**:
    - Plug in your Cricut machine and turn it on.
    - Connect the Cricut to your computer or mobile device via USB or Bluetooth (depending on the machine and connection method you prefer).

Step 2: Open Cricut Design Space

1. **Launch Cricut Design Space**:
    - Open **Cricut Design Space** on your computer or mobile device.
    - Log in to your account or create a new one if you haven't already.

Step 3: Upload the Free Image

1. **Download a Free Image**:
    - Make sure the free image you want to use is saved on your computer in a compatible format (e.g., SVG for cutting, PNG for printing and cutting).
2. **Upload the Image**:
    - In Cricut Design Space, click the **"Upload"** button on the left-hand side.
    - Select **"Upload Image"** and then click **"Browse"** to find the image file on your computer.
    - Select the file and click **"Open"**.
3. **Select Image Type**:
    - If uploading a **PNG or JPEG** image, choose the image type (e.g., **Simple**, **Moderately Complex**, or **Complex**) based on the detail in the design.
    - If using an **SVG**, no need to choose the complexity as it's a cut-ready file.
4. **Clean Up the Image** (if needed):
    - If your image has a background (such as a PNG or JPEG), use the **Select & Erase** tool to remove it. This is especially important for cutting.
    - Once satisfied with the image, click **"Continue"**.
5. **Save the Image as a Cut File**:
    - Choose to save your image as a **Cut Image** (for cutting) or a **Print Then Cut Image** (if you plan to print and cut it).
    - Name the image and tag it for easy finding in the future. Click **"Save"**.

Step 4: Add the Image to Your Canvas

1. **Insert the Uploaded Image**:
    - After uploading, select your image from the **"Uploaded Images"** section and click **"Insert Images"** to add it to your canvas.
2. **Resize and Position the Image**:
    - Use the resize handles in the corner of your design to adjust the size. You can also use the **"Size"** panel at the top to enter exact dimensions.
    - Position the design on the canvas where you want it to cut.

Step 5: Prepare to Cut

1. **Select the Material Size**:
    - Make sure the material size (e.g., 12" x 12" or 12" x 24") is correct in the **"Material Size"** drop-down menu.
2. **Choose the Cutting Operation**:
    - Confirm that the image is set to **"Basic Cut"** for a standard cutting project. You can see this option in the **"Operation"** drop-down menu at the top.

Step 6: Load the Material on the Mat

1. **Place the Material on the Mat**:
    - Place your cutting material (e.g., vinyl, cardstock, or fabric) onto the **Cricut cutting mat**, aligning it with the top-left corner.
    - Smooth out the material to ensure there are no wrinkles or bubbles.

2. **Load the Mat into the Machine**:
    - Insert the mat into the Cricut machine by lining it up with the guides.
    - Press the **Load/Unload** button on the machine to load the mat.

Step 7: Select Material Settings

1. **Choose Material Type**:
    - On Cricut Design Space, click **"Make It"** to proceed to the cutting stage.
    - On the next screen, select your material from the list (e.g., vinyl, cardstock, fabric). If using a specific material, use **Custom Settings** to choose it.
2. **Check Blade and Tool**:
    - Ensure the correct blade (usually the fine-point blade for vinyl and cardstock) is installed in **Clamp B** of your Cricut machine.

Step 8: Cut the Design

1. **Start the Cutting Process**:
    - Once everything is set, press the **Go** button (usually a flashing "C" button) on your Cricut machine.
    - The Cricut will begin cutting the design.
2. **Monitor the Progress**:
    - Keep an eye on the machine while it cuts to ensure everything is going smoothly.

Step 9: Unload the Mat and Weed (if necessary)

1. **Unload the Mat**:
    - When the cutting is complete, press the **Load/Unload** button again to release the mat.
    - Carefully remove the mat from the machine.
2. **Weed the Design** (for vinyl or intricate cuts):
    - If you're using vinyl or have intricate cuts, use a **weeding tool** to carefully remove the excess material from your design, leaving only the cut image on the backing paper.

Step 10: Apply the Design (for vinyl projects)

1. **Use Transfer Tape** (if using vinyl):
    - For vinyl projects, cut a piece of **transfer tape** slightly larger than your design.
    - Place the transfer tape over your weeded design and smooth it out to ensure the tape adheres to the vinyl.
    - Peel off the backing from the vinyl, leaving the design on the transfer tape.
2. **Apply the Design to Your Surface**:
    - Position the design on the surface where you want it to be applied (e.g., a mug, t-shirt, or wall).
    - Use a scraper tool or a credit card to smooth the design and ensure it adheres well.
    - Slowly peel off the transfer tape, leaving the vinyl design on your surface.

Tips for Best Results:

- **Test Cut**: If you're using a new material, perform a test cut to ensure the blade pressure and settings are correct.
- **Mat Care**: Clean your Cricut mat regularly to maintain its stickiness. Use a scraper or lint roller to remove leftover debris.

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- 12 Pack 1/8" Thick MDF Wood Sheets Bulk - White Sublimation Hardboard Blanks for Cricut, Clipboard, Ornament, and Bulk Sublimation Blanks, $50, Amazon.com, Link.

Step 3 - All Finished? Clean up your space.

After Every Project:

1. Return Heat Papers back to holder
2. Turn off all Heat Presses used.
3. Throw away all scrap paper from the cutting board.
4. Wipe down Cricut Sticky boards with non-alcoholic wipes.
5. Clean cutting blade with blade cutting wipes.

6. Sign out of any accounts you logged into while using our computers.
7. Remember to take your USB sticks with you.

Notes:

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Digitization Station

Getting Started Guide

Digitization Station

Table of Contents

About our Digitization Workstation

The Digitizing Station is a dedicated workspace equipped with tools and technology for converting physical media into digital formats. This station includes devices like scanners (for photos, documents, or film), video and audio converters (for VHS tapes, cassettes, or vinyl records), and computers with specialized software for editing and archiving. This station allows users to preserve old media, create digital archives, or enhance and modify content for creative projects. It's an invaluable resource for anyone looking to modernize analog content or work on multimedia projects. You can use our high-quality photo printer to print your newly digitized images as well!

What can you digitize here?

Original media	Digital file format	Equipment & Software used
Records (33's, 45s, 78s)	Mp3	Ion Max LP Record Player & Audacity Music Studio
VHS Cassettes	Mpeg	Samsung DVD/CD/VHS player & Clear Click Video Digital Converter
DVDs	Mpeg	
Super VHS Cassettes	Mpeg	
Audio Cassettes	Mp3	Cassette Player Recorder
8 & Super 8 Movies	Mpeg	Wolverine
Photos (up to 8.27 inches by 11.69 inches AKA A4)	JPG	Epson Perfection V600 Photo Scanner
8mm, 35mm, mirrored formats and more	JPG	Epson Perfection V600 Photo Scanner

What physical memory card types can we support?

1. USB-A
2. USB-C
3. SD(Secure Digital)
4. Micro SD (TF)
5. MS (Memory Stick)
6. CF (Compact Flash)
7. 3.5" Floppy Disk
8. CD (CD-R. CD-RW)
9. DVD (DVD-R, DVD-RW)

What can you do with Digital files?

The most common uses are:

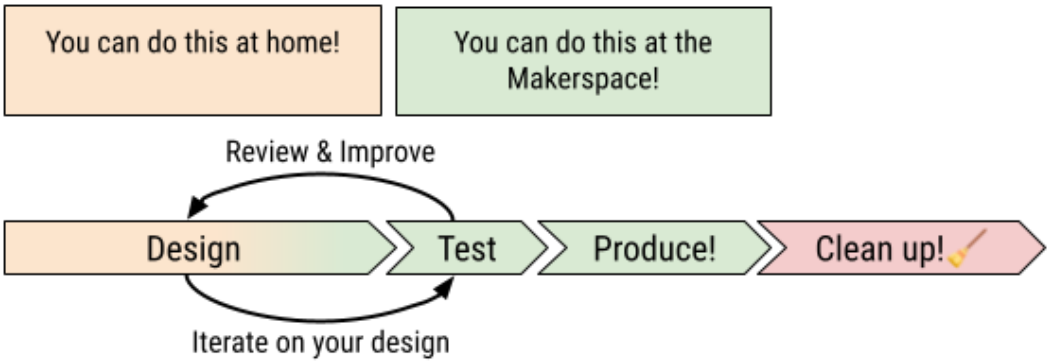
- Saving them for posterity on a local hard drive or SD-Card or on a cloud based service like Google Drive, Apple Cloud, or Microsoft OneDrive
- Upload Mpeg video files to online video platforms like YouTube for sharing.
- Share JPGs on your favorite social media site for friends and family. (Remember your privacy settings!)
- Print out JPGs to photo paper using our Epson 900 Photo Printer, do sublimation transfers to blanks such as puzzles, tee shirts, mugs, and coasters.
- "Burn" Mp3s to Audio CD so you can listen to them in your CD Player.
- Copy Mp3s to your phone or digital music service to listen to them 'on the go.'

This station has:

- iMAC Computer
- Wolverine- 8mm/super 8 films
- Clear Click Video Digital Converter
- Cassette Recorder/Converter
- Samsung DVD/CD/VHS
- Hi8 Video Camcorder
- Ion Max LP Record Player
- Epson Perfection V600 Photo & Slide Scanner
- Epson p900 Photo Printer
- USB Memory Card Adapters
- USB extender unit

The Three Step Process

We want you to have a successful time in our MakerSpace and that means helping all patrons be as prepared as they can prior to their arrival. There's so much you can do in the comfort of your home. With this guide we hope to equip you with as much information as you need! As such we've separated this guide into three sections: "Before you arrive", "During your visit," and "Clean up." Some things you can do before you arrive so your reservation window is best used for testing and not designing.



Step 1 - Preparing for your visit

Designing your project

5. Identify what you're going to digitize in advance.
    a. **VHS, SVHS, 8 & Super 8 Video** - If you have the ability to watch your tapes at home write down time stamps for when you want to start and stop recording. (Otherwise you're going to be sitting here doing it when you could be digitizing!)

b. **Slides** - If you have the ability to view your slides at home you can weed through the ones you don't want to scan prior to scanning them.
c. **Slides** - Clean your slides (using the manufacturer's recommendation) to remove dust and other physical imperfections.
d. **Cassette tapes** - Listen to your tapes in advance to screen which parts you may want to digitize. Think on if you want to create a single recording with one digital file or a file per audio track. The former is one big file with all songs in one, the latter is several smaller files. The advantage of individual files is your ability to rearrange, exclude, etc songs in your playlists.

Step 2 - While you're here

5. Work on our computer connected to the Epson Photo printer & other Digitization equipment.
6. Our MakerSpace technician is here to help optimize your design,
7. Pay for any prints you make prior to submission of your job. There are no refunds for failed prints.

How to work with the Station

Click here to view our Patron Support guides for the following processes:

- Edit Audio with Audacity
- Digitize 8mm Movies
- Digitize Cassette Tapes
- Digitize (Scan) Photos
- Digitize (Scan) Slides
- Digitize VHS Tapes
- Digitize Video Tapes
- Digitize Vinyl Records
- Burn Music CD
- AirDrop Files
- Wolverine 8mm manual
- How To Burn Video Disk
- Print Digital Images
- CD and DVD Superdrive
- Burn Video Disk

Note: Some of these documents can be found duplicated below to offer more detail.

How to:

- **Convert Photos to digital graphic files (jpg)**

- **Convert 8mm to digital video files (mpeg)**
- **Insert CK guides here**
- **Instructions on printing to the Epson photo printer here**

Convert Photos with Epson Perfection V600 Photo Scanner

Using the Epson Perfection V600 photo scanner with your iMac is straightforward. Below is a step-by-step guide to help you scan photos easily.

Materials and equipment needed:

- iMAC- Epson Scan2 App
- Epson Perfection V600 Photo Scanner J252A
- USB Extender Unit
- Original photos
- Personal USB storage device

Step 1: Turn on iMac

Step 2: Insert your personal USB into the USB Extender Unit

Step 3: Startup Photo Scanner

Step 4: Place the Photos on the Scanner

1. Open the Scanner Lid: Gently lift the lid of the Epson V600 scanner.
2. Position Your Photos:
    - Place your photo(s) face down on the scanner bed.
    - Align the photo(s) to the indicated corner or markings on the scanner bed for optimal positioning (usually the top-left corner).
    - If scanning multiple photos, leave at least ½" space between each photo, and ensure they are straight.
    - If need to rearrange their positioning on the scanner glass, repeat step 5
    - If need to rotate, flip, etc. any of the select images, use action bar on left

Step 5: Adjust Settings in Epson Scan

1. Open Epson Scan2: Launch the Epson Scan software.
2. Select the Scan Mode:
    - Epson Scan typically offers different scanning modes:
        - Full Auto Mode (simple, automatic scan with default settings)
        - Home Mode (gives you more control over settings)
        - Professional Mode (provides full manual control for advanced adjustments).
    - Choose Home Mode or Professional Mode for more customization options.
3. Adjust Scan Settings:
    - Resolution: Select a resolution (DPI). For standard photo scanning, 300 DPI is typically sufficient for high-quality prints. For archiving or large prints, you may want to choose a higher resolution (600 DPI or higher).
    - Color Settings: Choose Color if scanning a color photo, or select Grayscale or Black and White for monochrome images.

- Document Type: Make sure to select Photo as the document type to get optimal color and detail.
- File Type: Choose the file format you want to save the scan in (JPEG, TIFF, PDF, etc.). JPEG is a good choice for general use, while TIFF offers higher quality for archiving.

Step 6: Scan the Photo

1. Preview the Scan:
   - Click on the Preview button in Epson Scan to get a preview of the scan. This will show you the area it plans to scan.
   - Adjust the cropping area if needed by dragging the edges of the selection box.
2. Final Scan:
   - Once you're happy with the preview, click Scan.
   - The scanner will begin scanning the photo. The process may take a few seconds to a minute, depending on the resolution you've chosen.

Step 7: Save the Scanned Image

1. Choose your personal USB Storage Device:
   - Once the scan is complete, you'll be prompted to choose a location to save your scanned photo (e.g., Desktop, Documents, or a specific folder).
2. Name the File: You can enter a name for your scanned photo.
3. Save: Click Save to store your scanned photo.

Step 8: Close the Scanner and Epson Scan

1. Turn Off the Scanner: After scanning all your photos, turn off the scanner.
2. Exit Epson Scan: Close the Epson Scan software on your iMac.

Step 9: Review Your Scanned Photos

1. Open the Saved Files: Go to the folder where you saved your scanned photos and open them with an image viewer (Preview, Photos app, etc.) to review the quality.
2. Edit If Necessary: If you need to make adjustments (e.g., brightness, cropping, or color correction), you can edit your scanned photos using an image editing app like Preview or Adobe Photoshop.
3. When done, eject your Personal USB Storage Device

Tips for Better Scanning Results:

- Clean the Scanner Glass: Make sure the scanner glass is clean before scanning to avoid smudges or dust spots in your scans.
- Use High Resolution for Archiving: If you're scanning photos for preservation, use at least 600 DPI to capture the maximum detail.
- Scan in Color: Even for black-and-white photos, scanning in color may help preserve more details and allow for better editing in the future.

Convert 8mm with Wolverine Converter

The **Wolverine 8mm and Super 8 Movie Digitizer** is a popular device for converting old 8mm and Super 8 films into digital video files. Here's a step-by-step guide to using the Wolverine converter with your iMac.

What You'll Need:

- **Wolverine 8mm & Super 8 Movie Digitizer**
- An **iMac** (running macOS)
- **SD card** (to store the digitized videos) (Typically 2GB per hour)
- **Film reels** (8mm or Super 8)
- **Adapter for SD card** (if your iMac doesn't have a built-in SD card reader)
- **Video editing software** (optional for editing the digitized footage)

Wolverine 8mm Film Digitizing					
Reel Diameter Inches	Film Length Feet	8mm Run Time Minutes	Super 8mm Run Time Minutes	Approximate Digitization Time hours:minutes	Approximate file size GB
3	50	4	3.5	0:30	0.18
4	100	8	7	1:00	0.36
5	200	15	20	2:00	0.72
6	300	20	26	3:00	
7	400	30	40	4:00	
8	600	44	55	6:00	
9	800	60	53	8:00	
Wolverine 8mm and Super 8 supports up to 5" reels and 720P					
Wolverine MovieMaker-PRO supports up to 9" reels and 1080P					

Note: We have the standard machine that supports up to 5" reels.

Step 1: Set Up the Wolverine 8mm Converter

1. **Load the Film Reel**:
    - Open the reel arms and place your 8mm or Super 8 film on the appropriate reel holder.
    - Thread the film following the diagram on the converter, ensuring it is correctly aligned and tensioned.

Step 2: Insert the SD Card

1. **Prepare an SD Card**: Insert a formatted SD card into the slot on the Wolverine converter. This card will store the digitized video files.
2. **Ensure Proper Format**: Make sure the SD card is formatted as FAT32 or exFAT, as this is compatible with both the Wolverine device and your iMac.

Step 3: Start the Digitizing Process

1. **Select the Film Type**:
    - On the Wolverine's display, select whether you're digitizing **8mm** or **Super 8** film using the on-screen options.
2. **Start the Conversion**:
    - Press the **Start/Convert** button on the Wolverine device to begin converting the film to a digital format.
    - The machine will scan each frame of the film and save it as a video file on the SD card. This process takes time, as the film is digitized frame by frame in real-time.
3. **Monitor the Process**: Keep an eye on the film as it runs to ensure everything is going smoothly. You can pause the process if needed.

Step 4: Transfer the Files to Your iMac

1. **Eject the SD Card**: Once the conversion is complete, safely eject the SD card from the Wolverine converter.
2. **Insert SD Card into iMac**:
    - If your iMac has an SD card reader, insert the card directly.
    - If not, use an **SD card adapter** (such as a USB SD card reader) to connect the SD card to your iMac.
3. **Open the SD Card**:
    - Once the card is connected, it will appear as an external drive on your desktop.
    - Open the drive to view your converted video files.

Step 5: Save the Digitized Videos

1. **Transfer Files**:
    - Select the digitized video files (usually in **MP4** format) from the SD card and drag them to a folder on your iMac (e.g., **Documents**, **Movies**, or an external hard drive for backup).
2. **Safely Eject the SD Card**:
    - After the files have transferred, right-click the SD card icon on your desktop and choose **Eject**.

Step 6: Edit the Footage (Optional)

1. **Open Video Editing Software** (Optional):
    - If you want to edit the footage (trim, color correct, add titles, etc.), open a video editing app such as **iMovie** (pre-installed on your iMac) or **Final Cut Pro**.
2. **Import the Video**:
    - Open the editing software and import the digitized video files by selecting **Import Media** and choosing the saved videos from your iMac.
3. **Edit and Export**:
    - Make any necessary edits and then export the final video in the desired format.

Step 7: Back Up Your Videos

1. **Create a Backup**:

- It's always a good idea to back up your digitized videos. You can upload the files to a cloud storage service (like Google Drive or iCloud) or save them to an external hard drive for safekeeping.

Tips for Best Results:

- **Clean the Film**: Make sure your 8mm or Super 8 film is clean before digitizing. Dust or dirt can interfere with the quality of the conversion.
- **Film Tension**: Keep the film properly tensioned during the conversion process to avoid jams or errors.
- **Preview and Adjust Settings**: Use the preview function on the Wolverine to adjust brightness or exposure before starting the conversion for the best video quality.

Step 3 - All Finished? Clean up your space.

After Every Project:

8. Delete your recordings off any Makerspace owned SD-Cards used for transferring files from the recording devices to the i-Mac computers.
9. If you copied your files to the i-Mac before copying them to your personal SD-Card delete these as well.

Notes:

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Glowforge Laser Cutter & Engraver

Getting Started Guide

Glowforge Laser Cutter & Engraver

Table of Contents

About our Glowforge laser cutter/engraver

The Glowforge laser cutter is a versatile desktop device that uses a laser to cut, engrave, and score a variety of materials such as wood, acrylic, leather, fabric, and more. Known for its precision and ease of use, the Glowforge is popular in both hobbyist and professional maker communities. It features intuitive software and allows users to create intricate designs from digital files, making it ideal for crafting, prototyping, and small-scale manufacturing

Approved Materials

Cut & Engrave

- Wood (Unstained, Untreated, Unpainted, No Glues)
- 100% Acrylic
- Leather (Vegetable Tanned Only)
- Mylar
- 100% Natural Cork
- Glowforge Proofgrade Materials

Engrave Only

- 100% Natural Cork
- Glass
- Ceramic Tile
- Anodized Aluminum
- Marble
- Stone
- Titanium

Notes

- *Some materials will allow all three procedures (Cutting, Engraving, Scoring) and some materials will not. Also, the dimensions of materials can inhibit some of the procedures.*
- *Material thickness is ¼ to ½ with the dust tray attached and xxx without the dust tray. The max width is xxx and normal length is xxx.*

Cuts & Engraves

	Pro HD & Plus HD	Pro & Plus	Aura & Spark
Wood	✓	✓	✓
White, blue & clear acrylic	✓	✓	X
Other acrylic colors	✓	✓	✓
Leather	✓	✓	✓
Wood veneer	✓	✓	✓
Paper	✓	✓	✓
Cardboard	✓	✓	✓
Mylar	✓	✓	✓
Cork	✓	✓	✓
Sandpaper	✓	✓	✓
Natural fabrics	✓	✓	✓
Iron-On vinyl alternative	✓	✓	✓
Press-On vinyl alternative	✓	✓	✓
Vinyl made with PVC	X	X	X
Thin & light Proofgrade®	✓	✓	✓
Medium & thick Proofgrade®	✓	✓	X
Draftboard®, MDF, and HDF	✓	✓	X

Engraves

	Pro HD & Plus HD	Pro & Plus	Aura & Spark
Stone	✓	✓	✓
Slate	✓	✓	✓
Titanium	✓	✓	✓
Aluminum	✓	✓	✓
Marble	✓	✓	✓
Ceramic	✓	✓	✓
Rubber	✓	✓	✓
Glass	✓	✓	X

...and hundreds more!

⚠ All materials must be laser compatible, or they could destroy your laser.

⚠ Good and bad materials look the same, like polyester and vinyl, or different plywoods.

✅ Glowforge Proofgrade® materials are guaranteed to be compatible and work perfectly every time.

The Three Step Process

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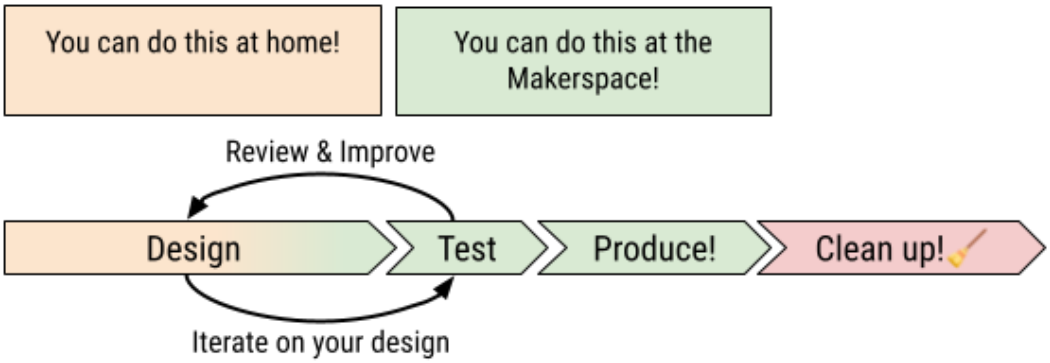


Step 1 - Preparing for your visit

Become acquainted with the Glowforge and its software

6. Learn about the Glowforge and the kinds of projects you can complete by watching Glowforge's tutorials.
7. Go online and browse the Glowforge Design space for ideas!
8. Create an account for the Glowforge Design software on their website. (Link your Google account for easiest access)
    a. Browse the free (and premium) templates for projects that could inspire you.
    b. Create your own project using the text, shape, and import graphics features of the tool.
9. Create your own "SVG" files to import into the Glowforge by using online software like Photopea (free) or installable programs like Inkscape. (Free). Canva

Step 2 - While you're here

8. Work on our computer connected to the Glowforge Laser Cutter/Engraver.
9. Our MakerSpace technician is here to help optimize your design,
10. Pay for any materials you use prior to beginning your job. There are no refunds for failed jobs.
11. Sign on with your personal account to load your work done at home. OR
12. Use our Premium Glowforge account to access premium content on the Glowforge store for your projects.

How to work with the Station

Step-by-Step Guide- Glowforge Pro First Cut

Before You Begin

- ***Ensure the ventilation fan is on prior to starting your job.***
- ***Safety First****: Always use your Glowforge Pro in a well-ventilated area. The built-in air filter or exhaust system should be properly set up and vented outdoors to avoid harmful fumes.*
- ***Materials****: Make sure the materials you're cutting or engraving are compatible with the Glowforge. Stick to approved materials like wood, acrylic, leather, fabric, or Glowforge Proofgrade materials for best results.*
- ***Design Software****: You can use design software like Adobe Illustrator, Inkscape, or even hand-drawn images to create your files. Glowforge accepts file formats like SVG, PNG, JPG, and PDFs.*

Step 1: Prepare Your Design

1. **Create or Upload a Design**: In your preferred design software, create a design that matches the size and complexity of your project. Ensure your file is in a supported format.
2. **Set Colors for Different Actions**: Use different colors in your design file to designate different actions (cut, score, or engrave). This will make it easier to assign settings later.
3. **Upload the Design**: Go to the Glowforge app (app.glowforge.com) and upload your design.

Step 2: Material Setup

1. **Place Material on Bed**: Open the Glowforge lid and place your material flat on the crumb tray. Use Proofgrade materials for auto-detection or input custom material settings manually.
2. **Auto-Focus & Camera Preview**: The Glowforge Pro uses a built-in camera to scan the material and adjust for focus. You'll see a live preview of the material and design layout on the app interface.

Step 3: Assign Cutting/Engraving Settings

1. **Material Recognition**: If using Proofgrade materials, the Glowforge will automatically assign the correct settings. If using custom materials, select the appropriate settings for cut, score, or engrave.
2. **Adjust Settings Manually** (if needed): If your material isn't auto-detected, you'll need to input settings manually, adjusting the laser power and speed based on the material's thickness.

Step 4: Position Your Design

1. **Move the Design on the Preview Screen**: Use the app's interface to position your design on the material. Ensure it fits within the boundaries of your material and the laser bed.
2. **Double-Check Placement**: Confirm that the design doesn't overlap the edges of the material and that it's properly aligned.

Step 5: Print Your Design

1. **Press the Button**: Once you're satisfied with the settings and layout, click "Print" from within the app. The machine will calculate the time required for the job.
2. **Start the Job**: Press the flashing button on the Glowforge to start the laser cutting or engraving process. Stay nearby during the operation to monitor for any issues.

Step 7: Remove the Finished Product

1. **Wait for the Laser to Finish**: Once the Glowforge completes the job, the lid will unlock, and the machine will turn off.
2. **Carefully Open the Lid**: Open the lid and remove your material. Be cautious of any lingering smoke or fumes, and let the material cool if necessary.
3. **Clean the Edges**: Some materials might have residue or burn marks along the edges, which can be easily cleaned with sandpaper or a damp cloth.

Step 8: Post-Processing & Maintenance

1. **Clean the Optics**: Regularly clean the lenses, mirrors, and crumb tray to keep your Glowforge operating at peak performance.
2. **Store Your Materials Safely**: Store your materials in a dry, cool place to prevent warping or damage.

Tips for Success

- **Proofgrade Materials**: These are pre-optimized for the Glowforge and come with a protective film that reduces scorch marks, making them ideal for beginners.
- **Test Cuts**: For non-Proofgrade materials, perform a small test cut or engrave in an unused section of your material to fine-tune settings.
- **Use Multiple Passes**: If the material doesn't cut all the way through, try using multiple passes at a lower power to prevent burns.

Glowforge Pro Passthrough

The Glowforge Pro's passthrough slot allows you to work on materials longer than the cutting bed size by feeding them through the machine in sections. This feature is particularly useful for creating large, continuous cuts or engravings.

Do not attempt using Glowforge passthrough until reviewing this information- https://support.glowforge.com/hc/en-us/articles/360047669153-Pro-Passthrough

Before You Start

- ***Material Compatibility****: Make sure you're using materials that can fit through the passthrough slot (up to 20 inches wide, any length, and no thicker than 1/4 inch).*
- ***Proofgrade Materials****: If possible, use Proofgrade materials for automatic settings and optimized results, but you can also manually input settings for other materials.*
- ***Alignment Practice****: Because the design is cut in sections, mastering alignment is key to getting perfect results.*
- *Prep Glowforge for Passthrough Feature*

Step 1: Prepare Your Design

1. **Create a Large Design**: Use your design software (like Adobe Illustrator, Inkscape, etc.) to create a file that is larger than the Glowforge bed size (19.5" x 11"). Ensure it fits the length of the material you'll be feeding through.
2. **Save the File**: Save your design in a Glowforge-compatible format such as SVG, PDF, or PNG.
3. **Optimize for Alignment**: Use alignment markers in your design, such as small shapes or lines, to help visually guide each section during the process.

Step 2: Load the Material into the Passthrough Slot

1. **Open the Passthrough Slot**: The passthrough slot is located at the front and back of the Glowforge Pro. Push the material into the slot so that it sits on the crumb tray, and the part you want to cut or engrave first is visible under the laser head. The GL will print from the front of the material and will continue to print in program directed stages as material is fed through the rear slot.
2. **Make Sure the Material is Straight**: The material must feed in straight to avoid misalignment. Use the guides on the crumb tray or place a ruler or straight edge on the tray to help position the material.

Step 3: Upload Your Design

1. **Go to the Glowforge App**: Open the Glowforge web interface (app.glowforge.com).
2. **Upload Your Design**: Upload your large design to the Glowforge app. The app will automatically detect that it's larger than the standard cutting area and prepare it for the passthrough process.
    a. *Tip: In upper right area of screen, select 3-dot drop down symbol and choose "Pro Passthrough"*

Step 4: Start the First Section

1. **Set Material Settings**: If using Proofgrade materials, the Glowforge will auto-detect settings. For other materials, manually input the correct settings (cut, score, engrave).
2. **Preview the First Section**: The app will show a preview of the first section of your design to be cut. Make sure this part fits on the material visible inside the Glowforge.
3. **Adjust the Position**: Move the design on the preview screen to align it with the material inside the machine. Ensure it's positioned correctly for cutting or engraving.
4. **Click "Print"**: Once you're satisfied with the settings and position, click "Print" in the app. The Glowforge will calculate the cutting time for the first section.
5. **Start the Cut**: Press the flashing button on the Glowforge to begin cutting or engraving the first section of your design.

Step 5: Advance the Material Through the Passthrough

1. **Wait for the First Section to Complete**: Once the first section is done, the machine will stop and prompt you to move the material.
2. **Push the Material Through**: Open the Glowforge lid, and gently push the material further through the passthrough slot so that the next section of the design is positioned inside the cutting area.
3. **Align for the Next Section**: Use the preview screen in the app to align the second section of the design. You can use visual alignment tools or your own guide marks on the material to ensure perfect positioning.
    a. *Tip: In upper right, select 3-dots drop down symbol again and then select "focus" and position cursor in the middle of the area to be printed.*
4. **Let the Camera Help**: The Glowforge's onboard camera will help you align each section of the design. Adjust the design in the app until it matches the new position of the material.

Step 6: Continue the Process

1. **Print Each Section**: After aligning, click "Print" to cut or engrave the next section. Repeat this process until the entire design is completed.
2. **Feed & Align**: For each new section, push the material through the slot, align the design using the camera and visual guides, then print the next part
    a. Tip: This process can take up to 5 minutes.

Step 7: Finalizing the Project

1. **Complete the Final Cut**: Once the last section of your design is finished, remove the material from the Glowforge.
2. **Inspect & Clean**: Examine the finished piece to ensure all sections are properly aligned and completed. You may need to lightly sand or clean the edges of your material depending on the material used.
3. **Post-Processing**: If your design requires assembly (such as in the case of multi-piece projects), proceed to glue or finish the project as needed.

Tips for Success

- **Alignment Marks**: If your design is complex or you need perfect alignment, add small marks to your design to help guide the placement of each new section.
- **Double-Check Alignment**: After feeding the material through for each section, take your time to ensure it's straight and properly aligned with the previous cut to avoid gaps or overlaps.
- **Watch for Bowing**: If your material starts to bow or flex as you feed it through, gently flatten it by pressing down on it in the middle of the Glowforge bed.
- **Use Proofgrade Materials**: Glowforge Proofgrade materials are optimized for passthrough use, as they are often more stable and provide auto-recognition for quick settings.

Trace and Cut Feature

The **Trace and Cut** feature on the Glowforge allows you to trace a hand-drawn design or an image placed directly inside the machine and then cut, engrave, or score it. This is a great tool for creating custom designs without needing to use design software.

What You'll Need

- *A hand-drawn or printed design on paper or any flat material.*
- *Material for cutting or engraving, such as wood, acrylic, or leather.*
- *The Glowforge app on a connected device (computer, tablet, etc.).*

Step 1: Prepare Your Design

1. **Create or Print Your Design**: Draw or print your design on paper, cardstock, or any material that will lay flat. If you're drawing by hand, make sure the lines are dark enough for the Glowforge's camera to detect (use a thick marker for best results).
2. **Position Your Material**: Place the paper or the object with your design directly on the Glowforge bed. Make sure it's flat and positioned under the camera.

Step 2: Open the Glowforge App

1. **Login to the Glowforge App**: Go to app.glowforge.com and log into your account.
2. **Select the Trace Feature**: On the main dashboard, click the "Trace" button. This opens the camera view of the Glowforge bed.

Step 3: Capture Your Design

1. **Camera Scans the Bed**: The Glowforge camera will automatically scan the material on the bed and show the image in the app interface.
2. **Select the Design**: Use your mouse or touchscreen to draw a box around the part of the image or drawing you want to trace. The Glowforge app will detect the lines and convert them into a cuttable or engravable shape.
3. **Adjust Threshold**: If the trace isn't clear enough, you can adjust the contrast or threshold to darken or lighten the lines detected by the camera.

Step 4: Choose Your Action (Cut, Score, or Engrave)

1. **Assign Operations**: After the design is traced, you can assign different actions to the traced elements:
    - **Cut**: The laser will cut through the material along the traced lines.
    - **Score**: The laser will draw a thin line along the traced path without cutting through.
    - **Engrave**: The laser will remove material to create a recessed design based on the filled-in areas of the image.
2. **Modify Settings**: Choose the appropriate material from the app's dropdown menu. If you're using Glowforge Proofgrade materials, the settings will be auto-populated. For custom materials, manually adjust the power, speed, and focus settings as needed.

Step 5: Position the Traced Design

1. **Move the Traced Design**: The traced design can now be moved and resized in the app interface. Drag it to the position where you want to cut or engrave on your final material.
2. **Ensure Alignment**: Make sure the traced design is properly aligned with your material on the Glowforge bed.

Step 6: Prepare Your Material for Cutting or Engraving

1. **Place the Final Material on the Bed**: If you're tracing and then cutting or engraving on a different material (e.g., wood, acrylic), remove the paper and place the material you'll be cutting or engraving into the Glowforge.
2. **Check the Layout**: Use the app's camera preview to make sure the traced design is aligned on your final material.

Step 7: Print Your Design

1. **Click "Print"**: When you're ready, click the "Print" button in the app. The Glowforge will calculate the time needed for the operation.
2. **Press the Button**: Press the flashing button on the Glowforge to begin the cut, score, or engrave.

Step 8: Remove and Finish the Project

1. **Wait for Completion**: Once the machine has finished, wait for the laser to stop and the Glowforge to unlock.
2. **Carefully Remove the Material**: Open the Glowforge lid and carefully remove the finished piece.
3. **Inspect the Result**: Check the cut or engraved design for accuracy. If needed, clean up the edges or any residue left from the laser cutting process.

Tips for Success

- **Use High-Contrast Designs**: Dark, clear lines are easiest for the Glowforge to trace. If your lines are too light, the camera might not pick them up well.

- **Test the Trace on Scrap Material**: Before cutting your final piece, test the trace on a small scrap of material to ensure alignment and accuracy.
- **Keep Materials Flat**: Make sure your paper or material lays flat inside the Glowforge. Any wrinkles or warping could distort the trace.
- **Multiple Traces**: You can trace multiple elements in one go by selecting and tracing different parts of your design and assigning different actions (cut, engrave, score) to each.

Make Glowforge Jigsaw Puzzles

Create a Puzzle using Glowforge Puzzle Maker
https://support.glowforge.com/hc/en-us/articles/1260804017450-Create-a-Puzzle-using-Puzzle-Maker

1. Go to the Glowforge App (app.glowforge.com), and sign in.
2. Place the material you want to use on the printer bed of your Glowforge. For best results, we recommend Proofgrade materials such as Plywood, Hardwood, Draftboard or Acrylic.
3. On the Dashboard, open the design you want to use.
4. In the workspace, click the artwork to select it.
5. On the toolbar that appears on the right, click the Puzzle Maker  .
6. In the Puzzle Maker window, you can adjust the following settings:
    a. Set the number of puzzle pieces be by changing the value of rows and columns you want.
    b. Add Frame, if turned on, creates a frame and back for your puzzle. It's off by default.
    c. The Keep Original Artwork setting is off by default, and your artwork will be replaced with the puzzle. If you turn this option on, the workspace will keep both the artwork and the puzzle design.
7. Click Create Puzzle.
8. Drag your puzzle into place and, if you'd like, resize it. Now print and puzzle!

Puzzle making material suggestions

- 12 Pack 1/8" Thick MDF Wood Sheets Bulk - White Sublimation Hardboard Blanks for Cricut, Clipboard, Ornament, and Bulk Sublimation Blanks, $50, Amazon.com, Link.
- 1/8" White | Maker Boards Colors Line of Double Sided Painted Basswood Plywood Sheets, 12x12 inches, 1/16th and 1/8th Thickness, 17 Colors Available, Laser Safe, Diode Laser Compatible, 10 sheets $35, Amazon.com, Link.
- Photo paper, laser/inkjet print paper, or something similar glued to chipboard or wood with a clear varnish on top of the photo after it was mounted to the wood, and then cut.

Dye sublimation print on wood

- Sand the surface with 69 - 80 grit sandpaper going with the grain
- Design and print a heat transferrable image
- Heat press on wood
- Apply a clear coat
- Then cut

Other References

- Laser Cut Puzzle Collection, by msraynsford in LivingToys & Games, https://www.instructables.com/Laser-Cut-Puzzle-Collection/
- Online File Generators for Laser Cutting, Maker Design Lab, https://makerdesignlab.com/tutorials-tips/online-file-generators-for-laser-cutting/.
- Finally Made a Puzzle, by reynoso, Glowforge Community, https://community.glowforge.com/t/finally-made-a-puzzle/69804.
    - Other puzzle generators:
    - Dradarech Jigsaw Puzzle Generator
    - Voronoi Puzzle Generator
    - SVG Jigsaw Puzzle Generator
    - and of course there is an excellent Inkscape plugin that is my personal favorite because instead of cutting the individual pieces it generates horizontal and vertical cut lines which makes for a much cleaner finished puzzle.
    - Neon22 / inkscape-jigsaw puzzle generator
    - Also if you follow our resident puzzle master @jbmanning5 instructions to mask, cut horizontal, change mask, cut vertical and cut outline to make for faster weeding of the puzzle.
    -
    - JBManning5 How to weed a puzzle like a boss
- Making The Best Plywood For Laser Cut Puzzles, by Donald Papp, https://hackaday.com/2017/10/22/seeking-and-making-the-best-plywood-for-laser-cutting-puzzles/

Laser Cut/Engrave Rubber notes

Low Odor Gray Laser Rubber - A Starting Point
https://community.glowforge.com/t/low-odor-gray-laser-rubber-a-starting-point/15812

Settings I used on a Pro GF to produce successful stamps:
Engrave

- Speed: 220
- Power: 62
- Greyscale: Vary Power
- Min Power: 0
- LPI: 270 / LPCM: 106

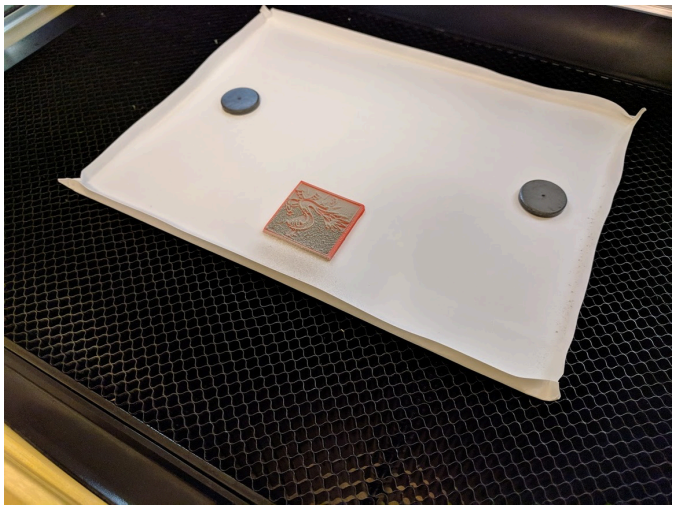
Pause it to open GF & vacuum the rubber dust – Use magnets to make sure you don't move the rubber during the vacuuming and use the bristle-brush attachment.

Cut

- Speed: 300
- Power: Full
- 1 Pass

It makes a lot of white powder that turns into flames and sparks when it moves onto the cut phase. The circled bits in the photo are where the dust turned to flames during the cut action.
Maybe cut first, then engrave? Or engrave, ignore the cut, open it up and lightly vacuum the dust, then do the ignore Engrave/Start Cut sort of thing. Tape it down of course to keep it from moving.

Wanting to keep my GF clean, I thought I'd try a little different approach. I first cut out the block of rubber to the size of my stamp rather than having the GF create any more stinky rubber smell than necessary. Then I folded up a piece of card stock into a makeshift tray. Then did the engraving. As you can see, the tray did a pretty good job of catching the dust.



Glowforge Material Settings & Notes

Light Basswood Plywood (3/25")

Medium Basswood Plywood

Thick Basswood Plywood (1/4")

Medium Basswood Hardwood

Medium Ash Hardwood (1/8")

Medium Aspen Hardwood

Eco Thin Black Acrylic (1/16")

Eco Medium Black Acrylic (1/8")

Medium Black Acrylic (1/8")

Caution: Glowforge Proofgrade Eco Iron-On is not vinyl (probably polyurethane based). Do Not Use Cricut Everyday Iron-On Vinyl. Avoid confusion, process all Iron-on Vinyl at CCS on Cricut.

Plywood Comparison

Vendor	Type	Description	Thickness	Price
Glowforge	Light Basswood Plywood	Masked, Finished	3/25" (3mm, 0.120")	$19.99, 12x12
Glowforge	Thick Basswood Plywood	Masked, Finished	1/4"	$26.00, 12x20
amazon.com	Basswood for Crafts	Unfinished	1/8", 3mm (0.120")	$19-21, 12x12, 10 pack

Engrave Settings

Material	Engrave Setting	Power	Speed	Passes	LPI	Notes
Proofgrade: Light Basswood Plywood	Draft Graphic	Full	1000	1	195	Variable Power
Proofgrade: Light Basswood Plywood	SD Graphic	Full	1000	1	270	Variable Power
Proofgrade: Light Basswood Plywood	HD Graphic	15	400	1	450	Convert to dots
Proofgrade: Light Basswood Plywood	Draft Photo	Full	1000	1	195	Convert to dots
Proofgrade: Light Basswood Plywood	HD Photo	81	300	1	450	Convert to dots
Medium Basswood Plywood	Draft Photo	90	900	1	170	Adequate for many purposes.
Proofgrade: Medium Basswood Plywood	HD Photo	30	250	1	450	Takes about 4x longer that Draft Photo.
Proofgrade: Thick Basswood Plywood	Draft Photo					
Slate Coasters	Manual	40	900	1	270	Simple BW (no greyscale), could go stronger.
Powder Coated Flask	Manual	Full	650	1	270	Fully removes thick powder coating revealing shiny SST underneath.
Proofgrade: Medium Basswood Plywood	Score: Draft	30	309	1	n/a	
Proofgrade: Medium Basswood Plywood	Score: High Quality	10	126	1	n/a	
Cotton fabric	Engrave	1000	60	1	270	Very sensitive to image darkness.

Cut Settings

Material	Setting	Power	Speed	Notes
1/16” Plywood	Proofgrade: Light Basswood Plywood (3/25”, 3mm)	Full	251	
1/8” Plywood	Proofgrade: Medium Basswood Plywood	Full	173	
1/8” Plywood	Proofgrade: Thick Basswood Plywood (1/4”, 5mm)	Full	186	
5 mm Oak Plywood (0.200”)	Manual			
1/4” Plywood	Manual			Extrapolated from 5 mm.
	Medium Basswood Hardwood	Full	225	
	Medium Ash Hardwood (1/8”)	Full	204	
	Medium Aspen Hardwood	Full	277	
	Eco Thin Black Acrylic (1/16”)	Full	204	
	Eco Medium Black Acrylic (1/8”)	Full	165	
	Medium Black Acrylic (1/8”)	Full	165	
	Thick Black Acrylic	Full	126	
Cotton fabric	Manual	90	500	

Step 3 - All Finished? Clean up your space.

After Every Project:

10. Throw away all scrap materials.
11. Sign out of any accounts you logged into while using our computers.
12. Remember to take your USB sticks with you.

Notes:

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Sewing Station

Getting Started Guide

Sewing Station

Table of Contents

About our

The **Brother SE700** is a versatile machine that allows you to sew and create beautiful embroidery designs. Here's a step-by-step guide to help you get started with both sewing and embroidery functions.

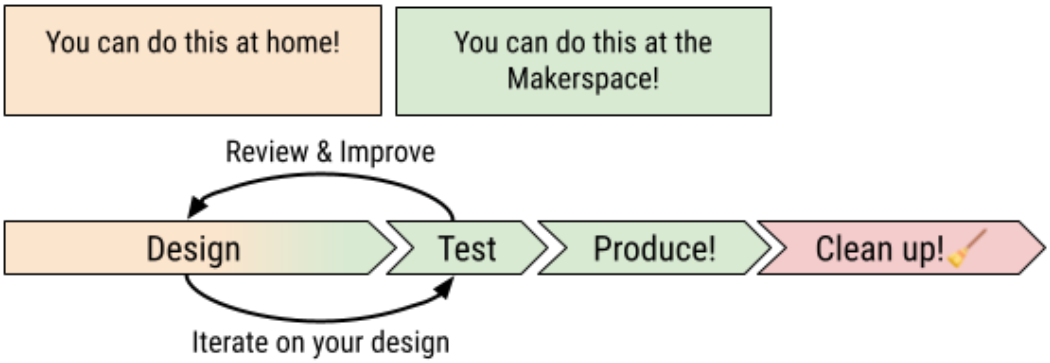
This station has:

- Brother SE700 Sewing and Embroidery Machine
- Brother Serger 1034D
- Brother SR9550 Sewing and Quilting Machine (4 each)
- Thread and bobbins
- Fabric for sewing or embroidery
- Embroidery designs (built-in or external via USB)
- Needles appropriate for your fabric
- Embroidery hoop (for embroidery projects)
- Stabilizer (for embroidery)

- Scissors or snips

The Three Step Process

We want you to have a successful time in our MakerSpace and that means helping all patrons be as prepared as they can prior to their arrival. There's so much you can do in the comfort of your home. With this guide we hope to equip you with as much information as you need! As such we've separated this guide into three sections: "Before you arrive", "During your visit," and "Clean up." Some things you can do before you arrive so your reservation window is best used for testing and not designing.



Step 1 - Preparing for your visit

Designing your project

10. Become familiar with our Embroidery software MySewNet by downloading and installing their software.
11. Watch YouTube videos on Embroidery and how to use the MySewNet software and our Brother SE700 machine.

Step 2 - While you're here

13. Work on our computer connected to the Brother Embroidery Machine
14. Our MakerSpace technician is here to help optimize your design,
15. Browse our extensive collection of scrap fabrics for testing your design.

How to work with the Station

Embroidery- Brother SE700

Step 1: Setting Up for Embroidery

1. **Switch to Embroidery Mode**:
    - Replace the sewing presser foot with the **embroidery foot**.
    - Attach the embroidery arm by sliding it into the side of the machine until it clicks into place.
2. **Install the Needle**:
    - Ensure the correct needle is installed for embroidery. Typically, a 75/11 embroidery needle works well for most fabrics.

Step 2: Prepare the Fabric

1. **Hoop the Fabric**:
    - Place your fabric (with stabilizer underneath) into the embroidery hoop.
    - Make sure the fabric is taut but not stretched.
2. **Attach the Hoop to the Machine**:
    - Slide the hooped fabric into the embroidery arm, ensuring it locks securely into place.

Step 3: Selecting and Loading an Embroidery Design

1. **Choose a Built-In Design**:
    - Use the touchscreen to select a built-in embroidery design. Browse through the options and tap on the one you want to use.
2. **Import a Design via USB**:
    - If you have an external design, insert a USB drive into the port on the machine.
    - On the screen, select the **USB** option to access and choose the design file from the USB drive.
3. **Adjust Design Settings**:
    - On the touchscreen, you can rotate, resize, or reposition the design on your fabric using the on-screen editing tools.
    - Confirm the final placement and settings before starting the embroidery.

Step 4: Start Embroidery

1. **Thread the Machine for Embroidery**:
    - Use embroidery thread for the upper thread, following the same threading process as for sewing.
    - Ensure your bobbin is loaded with a suitable bobbin thread.
2. **Begin the Embroidery Process**:
    - Press the **Start/Stop** button to begin the embroidery. The machine will automatically stitch the design onto your fabric.
    - Monitor the machine and change thread colors as prompted if your design has multiple colors.

Step 5: Finishing the Embroidery

1. **Remove the Hoop**:
    - Once the machine finishes stitching, press the **Start/Stop** button to end the process.
    - Remove the embroidery hoop from the machine.
2. **Remove the Fabric from the Hoop**:
    - Carefully remove the fabric from the hoop and trim any excess stabilizer or threads.

Tips for Best Results:

- **Stabilizer**: Always use an appropriate stabilizer for your fabric to avoid puckering when embroidering.
- **Thread Quality**: Use high-quality embroidery threads to prevent thread breakage during embroidery projects.

- **Tension Settings**: Adjust the thread tension as needed for different fabric types and embroidery designs.

Step 3 - All Finished? Clean up your space.

After Every Project:

13. **Clean the Machine**:
    - After each use, clean the bobbin case and surrounding area to remove any lint or thread buildup.
14. **Oil the Machine** (if required):
    - Refer to the user manual to see if and when your SE700 requires oiling.
15. **Regular Needle Changes**:
    - Change the needle regularly, especially when switching between fabrics or after completing a large project.
16. Clean up and throw out any scraps you may have generated.
17. Unplug any personal USB memory sticks from the machines or Embroidery laptop.

Notes

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Getting Started Guide

Bambu Lab P1S 3D Printer

Table of Contents

About our

The **Brother Sublimation Printer SP-1** is an ink-based printer which uses Sublimation paper to transfer complex art to 'blanks' such as mugs, puzzles, shirts, etc.

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About our

The Three Step Process

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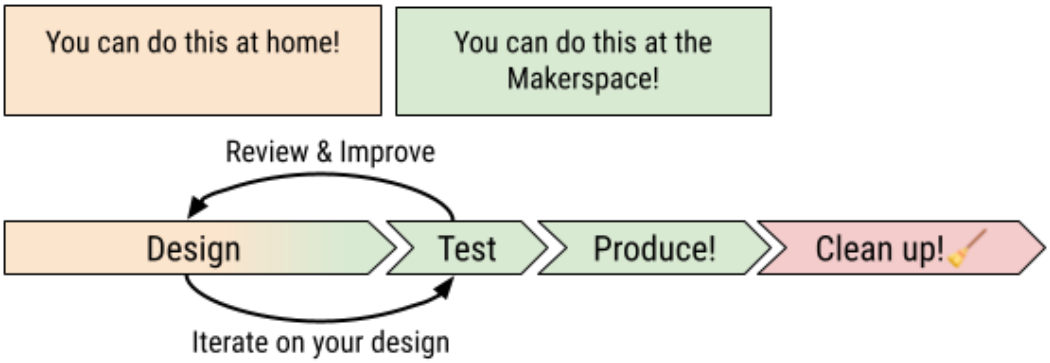

Step 1 - Preparing for your visit

Designing your project

12. Identify t

Step 2 - While you're here

16. Work on our computer connected to the Brother Sublimation printer
17. Our MakerSpace technician is here to help optimize your design,
18. Pay for any prints you make prior to submission of your job. There are no refunds for failed prints.

How to work with the Station

Step 1 - Printing your Artwork for sublimation heat transfer

1. Our Computer which is connected to the Sublimation printer has premade templates in PowerPoint for each of the bl

Step 3 - All Finished? Clean up your space.

After Every Project:

18. Return Heat Papers back to holder
19. Turn off all Heat Presses used.
20. Throw away all scrap paper from the cutting board.
21. Sign out of any accounts you logged into while using our computers.

22. Remember to take your USB sticks with you.

Notes:

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