3D Printing, Cutting & Cricut

The library maintains a Taz 5 3D printer, Glowforge Laser and Cricut Explore Air for use by the public in the library. The Cricut Explore Air maybe checked out from the library.

What is 3D Printing, Cutting & Cricut?

3D printing works by feeding plastic filament into a heated print head. The print head melts and extrudes a very thin layer of plastic filament onto a printing surface and then extrudes another layer on top of that. Layers of plastic are built on top of each other over and over, sometimes hundreds of times, until you have your finished model.

A Glowforge uses a CNC laser to cut and engrave using various materials such as wood, plastic, leather and metal. The typical cutting area is 12.5" deep x 20" wide x 0.5" up to 2" tall.

Cricut is an electronic cutting machine for DIY projects and crafts. It precisely cuts a wide variety of materials from paper to iron-on to adhesive vinyl—even thick materials like leather and burlap.

Where do the designs come from?

Our printer uses the .stl file format for 3D models. You can download model files from popular 3D communities such as Thingiverse and others or you can create a model yourself from scratch with free programs like Tinkercad and SketchUp.

The Glowforge uses .svg, .jpg, .png or .pdf. You can create SVG objects in free software like Inkscape, Canva and paid software like CorelDRAW. You can supply your own material (if approved by library staff) or purchase approved materials on hand at the library. It is highly recommended you have extra material for testing. You can create a Glowforge account using the GlowForge app.

Our Cricut cutter uses files from Cricut's Design Space website and you can create your own.

How long does it take to print?

It depends. Models just a few inches high can have hundreds of layers and can take hours to build. More intricate models/designs may take longer to print/cut but may not take more filament. Cura software used for rendering .stl files gives estimated 3D print times.

It also depends for the Glowforge, you **MUST remain with the Glowforge** during the entire printing process to monitor the laser.

How much does it cost?

3D Model cost depends on its printed weight not finished weight. Printed weight may include rafts and supports necessary to print your model correctly but are removed when your print is finished. Your printed weight will be more than your models finished weight. Models will cost 10¢ a gram. The library may require a $2.00 deposit prior to printing, any amount left over after printing will be returned to the users. You can find out your models weight by loading the file in Cura. You can download Cura at https://www.lulzbot.com/cura.

The cost to use the Glowforge is $1.00 per use. There is also a cost if you purchase materials from the library.

Cuts & Engraves
- Acrylic/Plexiglas
- Cardboard
- Cork
- Delrin (acetal)
- Fabric
- Leather
- Mylar
- Paper
- Rubber (non-chlorine-containing)
- Sandpaper
- Wood (unstained/unpainted ONLY)

Engraves Only
- Anodized Aluminum
- Ceramic Tile
- Corian
- Glass
- Marble
- Stone
- Titanium

NOT Permitted
- Stained Woods
- MDF
- Vinyl
- Plastic
- Polycarbonate/LEXAN
- Foam
- Fiberglass
- Food

*Due to Library Hours and Staffing the equipment may not always be available it is recommended that you contact the library to make an appointment prior to starting your project.

There is no cost to use the Cricut Cutting machines; however, you must provide your own supplies.

Library 3-D Printer/Cutter Use Policy

The library maintains a Taz 5 Printer, Glowfroge Laser and Cricut Explore Air Cutter equipment for use by the public.

Policy:
Use of the 3-D Printer/Cutter is at the discretion of library staff. The library reserves the right to deny use of the equipment.

It is expressly prohibited:

- To print/cut any object that is intended to physically harm, or attempt to harm, a person or animal in any way.
- To print/cut obscene or inappropriate materials.
- To print/cut any object that violates or infringes upon a patent, trademark, or other proprietary right. Use of the 3-D Printer/Cutter and associated equipment shall follow all legal guidelines. U.S. Copyright Law governs the making of photocopies or other reproductions of copyrighted material.

The library will not be liable for functional failure of, injuries, or property damage caused by objects or materials made through the use of the equipment. The library strongly recommends that the equipment not be used to make things that could prove harmful or that would result in significant cost to the user if they fail.
The library does not guarantee a successful print/project. Unless the print fails to finish, the cost of the completed print, regardless of quality, will still be charged.

Typically, your model will be created within 72 hours. However long print queues and breakdowns do happen and therefor we cannot guarantee completion times. When using the laser you must remained in the room to monitor until the print is complete.

Items that are not picked up after one week (7 days) will become property of the Lied Public Library.

Items must be picked up by the individual who printed them.

A charge in the amount of the print's cost will be added to the patron's record for any unclaimed items.

Only designated library staff and trained patrons will have access to the equipment.

The library is not responsible for the subsequent safety of any item made with the equipment.

Procedure:

Patrons must design, scan image, create or download their own models for use on the equipment; library staff are available for **assistance only**.

The maximum 3D printed area must be smaller then 11.7in x 10.8in x 9.8in. The typical laser cutting area is 12.5" deep x 20" wide x 0.5" up to 2" tall

Files must be in .stl file format or .svg. Files can be dropped off on a USB flash drive at the desk.

Cost: The library currently charges 10 cents per gram of PLA plastic. The cost to use the Glowforge is $1.00 per use.

The library reserves the right to schedule only one print per week per person or entity.

The library uses only PLA filament at this time and colors may be limited. Proof Grade materials for the Glowforge are limited to what is on hand.

Print times are estimated; we cannot guarantee print/cut times.

The library will render all files in software before printing.