

3D Printing at the Oldham County Library Lab

September 2018

Availability

- The LulzBot Mini 3D printer is available for public use on a first-come-first-served basis for public use only while a Lab staff member is in the OCPL Lab. The 3D printer is unavailable when the Lab is not staffed. **Please check our calendar for Lab hours.**
- Print jobs must be short enough to complete before the staff shift ends or library closes. On most days, staff shift times will limit print jobs to less than 4 hours.
- Staff must remain with the 3D Printer while in use in case of print failure.
- On weekends, print jobs must not keep the weekend staff member from taking his/her lunch break in a timely manner. Staff reserve the right to refuse a print job that will keep them from going to lunch.
- File preparation time must be factored into print time.

Using the Lulzbot Mini2

- The 3D Printer's build area is limited to 6.30" x 6.30" x 7.09" (160mm x 160mm x 180mm).
- The 3D Printer's volume is limited to 281.4in³ (4608cm³).
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Filament

- Patrons are limited to filament colors on hand. The Library will order additional colors as supplies are needed and patron requests are welcome.
- Only library-purchased filament will be loaded into the 3D Printer. Patrons may not supply their own filament.
- The printer can only print in one color of filament per print job. The printing process cannot be stopped in order to change filament colors.

Software

- 3D models must be provided in .stl format for the 3D object.
- The 3D printer cannot print files unless they have been prepared in the Lulzbot Cura software. <https://www.lulzbot.com/cura> The Library's laptops have Cura software installed and will be used for the patron's printing.
- Only OCPL Library laptops may be connected to the Lab 3D printer.
- Patrons must use the Cura software on Library laptops in the Lab to prepare their files as the version of the software must match the version of the firmware currently installed on the 3D printer. Failure to match versions can result in damage to the extruder.
- Staff may make suggestions regarding print settings such as scaling and rotating; patrons are responsible for choosing the settings which will give them the finished result they seek.
- It is the responsibility of the patron to delete and/or remove any files from the Library laptops in the Lab. The Library is not responsible for equipment or files left behind by patrons.

Fees for Use

The Library will charge a fee based on the grams of filament used to create the 3D printed object:

- Patrons must pay for printing PRIOR to the model being printed. CURA software estimates the amount of filament that will be used.
- The fee is \$.20/gram of filament.
- Objects will be rounded to the nearest gram for pricing purposes.
- In the case of print failure due to printer error, the patron's money will be refunded.
- If the print failure is determined to be caused by a malfunction of the printer (filament clog, extruder malfunction, etc.), the patron may retry the print if there is enough time remaining.
- If staff determine that the printing fault lies with the **model itself**, for example: print settings did not include raft, support, or bridge options to print difficult geometry, or model contains flaws which prevent successful printing, then patron will be required to revise the model to address any issues prior to re-printing.
- If a patron *chooses* to cancel their print job while in progress, fees will not be refunded.

Legal Limitations

The 3D printer may not be used for illegal activities. All other library policies apply when using the library's 3-D printer, including user behavior, acceptable use, cybersecurity, copyright, intellectual freedom and user privacy.

Privacy

The 3D Printer is located within public view and the Library cannot guarantee that any particular print will not be seen by members of the public.

Where do I find 3D models?

Thee follow list is of free programs for you to create your own 3D models:

- **Tinkercad** - entirely online!
- **SketchUp** - requires download and installation
- **Blender** - requires download and installation

The following sites have downloadable 3D object files for free. Some are from educational institutions, and some are from online communities of hobbyists. Be aware that these objects (especially from hobbyists) vary in quality and/or may be optimized for a different 3D printer and may not print as expected.

- **Smithsonian Institution** <http://3d.si.edu/> - A variety of models based on historical or natural history artifacts in the Smithsonian collection.
- **British Museum** <https://sketchfab.com/britishmuseum> - Collaborating with Sketchfab, the British museum is also offering 3D models of historical artifacts in their collection.
- **Thingiverse.com** - Hosted by the Makerbot company, Thingiverse is a place for anyone to share or download 3D printable objects.
- **Pinshape.com** - Another community for hobbyists and pros to offer 3D models. Many are free under a Creative Commons license, but there are objects for sale as well. Use the search limits on the left to show only free downloads.
- **Sketchfab.com** - This site is mainly a place for hobbyists and pros to show off 3D creations. Some are downloadable under a Creative Commons licence, BUT not every downloadable object is appropriate/optimized for 3D printing.