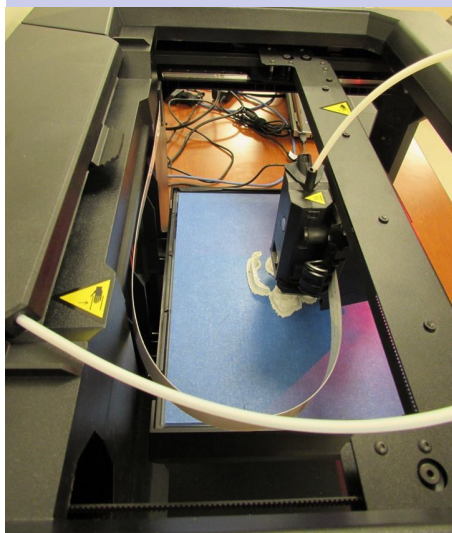


## What is 3D printing?

3D printing, or “additive manufacturing”, is a process for making a solid, three-dimensional object by laying down successive thin layers of a material. A digital design file provides the 3D printer with the instructions for how to create the object.



### Carnegie Museum of Montgomery County

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2014-11



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**Carnegie Museum**  
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## 3D Printing at the CMMC Frequently Asked Questions

### How do I have something printed?

To have an object printed, you need to provide us with a digital .STL file, either by email or on a USB drive. You also must come into the museum to fill out a request form and go over your proposed print with museum staff. If your object has multiple parts, each component must be saved as a separate file.

### How long does it take to print something?

Smaller jobs may print quickly, but larger objects can take several hours. The CMMC staff will print files during our regular business hours (Wed-Sat, 10-5). You do not have to be present while your file is being printed. We will do our best to provide you with a time estimate when you bring in your digital file.

### How much does it cost?

Objects are priced by weight. The cost is \$5.00 for the first 20 grams (including rafts and supports) plus \$.25 for each additional gram. Multiple small items or components may be combined to reach the \$5.00 minimum, upon approval by CMMC staff. You can estimate the weight of an object by using the same free MakerWare software from MakerBot that the museum uses to prepare print jobs on your home computer: [www.makerbot.com/desktop](http://www.makerbot.com/desktop).

### Where can I find objects to download and print?

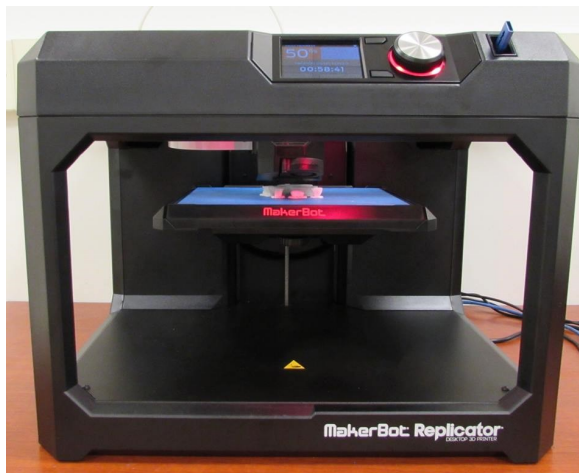
Both [Thingiverse.com](http://Thingiverse.com) and [3dwarehouse.sketchup.com](http://3dwarehouse.sketchup.com) have free existing designs you can download and print. They are also good sources of inspiration for creating your own designs.

### Where can I learn about designing my own 3D objects?

Any 3D drafting software will work, as long as you can convert your file to the .STL format before you bring it to us. The website [sketchup.com](http://sketchup.com) has software available to download, as well as online tutorials, tips and tricks, and an online community help forum. [Tinkercad.com](http://Tinkercad.com) also has tutorials and uses software that works in your browser without requiring a separate download.

### Are there restrictions on what kind of objects I can print?

Inappropriate or obscene objects, those which violate copyright or patent law, and weapons or weapon components are prohibited. The museum reserves the right to refuse any print request.



### How big can my object be?

Our MakerBot's maximum print area is 9.9" L x 7.8" W x 5.9" H. (25.2 cm x 19.9 cm x 15.0 cm)

### What colors are available?

Colors currently available at the museum include black, white, red, blue, green, orange, and glow-in-the-dark (\$1 surcharge) filament. Each object is printed in a single color. If your object has multiple components, each component can be printed in a different color.

### What else do I need to know before having an object printed?

- ◇ You are responsible for cleaning your own rafts and supports.
- ◇ Printed objects are not food safe.
- ◇ The museum may save copies of submitted print files and make them available to others wishing to print the same object.
- ◇ Only designated museum staff will have hands-on access to the 3D printer. You may watch your object being printed, but you may not touch the machine.

### Additional questions?

Please contact us!

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