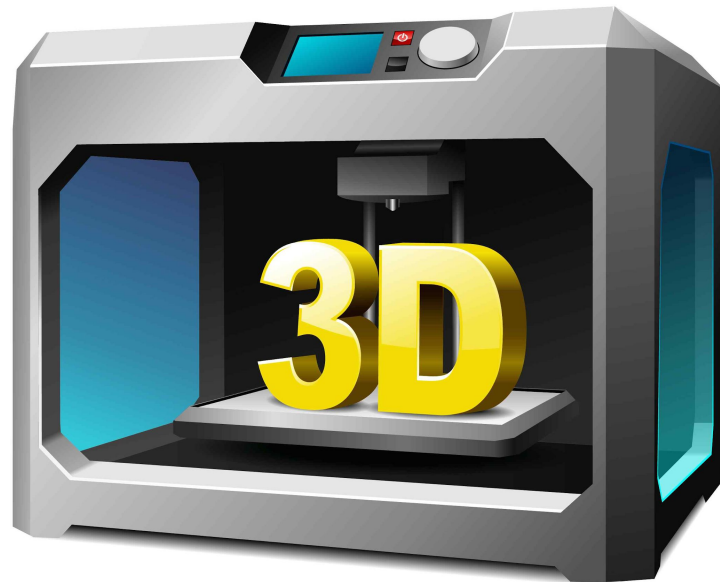


3D Printing Basics

Learn, Create & Make

Ann Stovall, May 2018



Agenda

- Day 1
 - 3D Printing/3D Design
 - Finding objects (Thingiverse)
 - Modify an object
 - Creating an object from scratch
 - Submitting a Form
- Day 2
 - Printing Basics
 - Finishing
 - Practice

What is 3D Printing

3D printing is also known as additive manufacturing which is a process of making three dimensional solid objects from a digital file. The 3D printing process turns a whole object into thousands of tiny little slices, then makes it from the bottom-up, layer by layer. Those tiny layers stick together to form a solid object. Each layer can be very complex, such as creating moving parts like hinges and wheels as part of the same object.



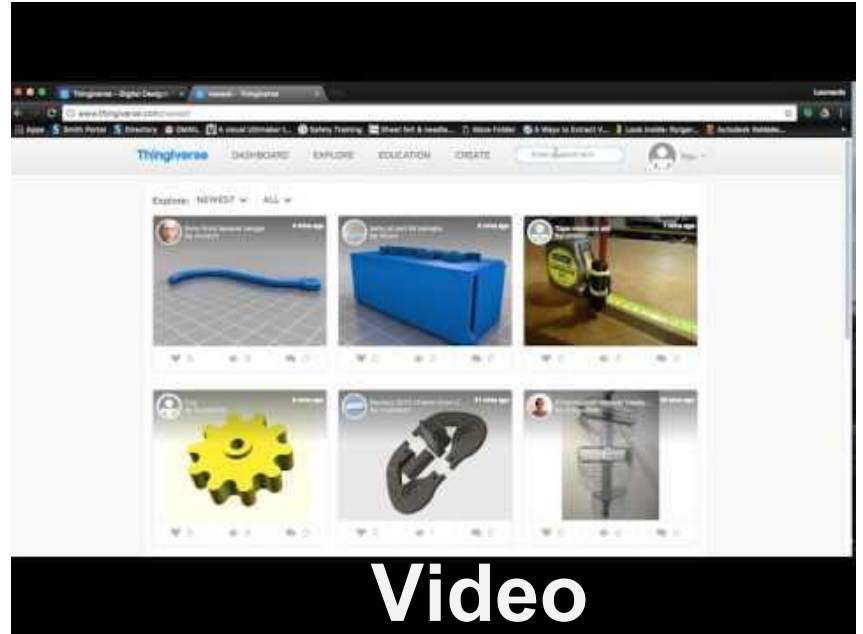
3D Printer



Makerbot Replicator 2
[3D Printer in Action Video](#)

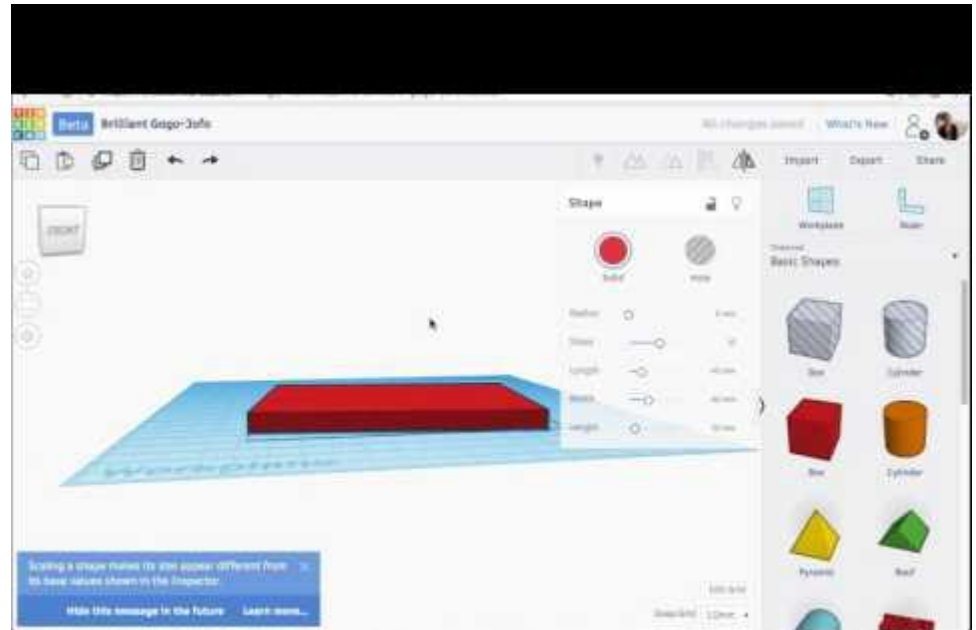
Finding Objects: Thingiverse

Thingiverse is Makerbot's design community for discovering, making, and sharing 3D printable things. In the spirit of maintaining an open platform, all designs are encouraged to be licensed under a **Creative Commons license**, meaning that anyone can use or alter any design.



Creating Objects: TinkerCAD

TinkerCAD is a free online tool that has great tutorials and easy to use. Make toys, prototypes, home decor, parts, jewelry and more.



Video

Day 2

- Printing Basics
 - Makerbot Software Demo
 - Rafts & Supports
- Finishing
 - Tools- sandpaper, rubbing alcohol, primer/filler, paint
 - Tips
- Resources
- Open Lab - Practice Time

MakerBot Desktop

- A free desktop software that allows you to prepare, manage, and print objects.
- Rafts
- Supports



Finishing Projects Resources

- [Painting 3D Printed Models](#)
- [Learn How to Paint Your 3D Print](#)
- [Makerbot Processing Guide](#)



Resources : Software & Learning

- [Blender](#) - a powerful free software, but takes awhile to learn
- [Meshmixer](#) - a free 3D modeling software to create, analysis and optimize 3D models
- [SketchUp](#) - a simple software with a fast learning curve and good tools.
- [Lynda.com](#) - Courses on 3D printing, Meshmixer, TinkerCAD, and Blender.
- [TinkerCAD](#)- YouTube Channel
- [MakerBot](#) - Youtube Channel

Resources: Free Designs .STL Files

Some sites require a free account. Note : *Some free designs may not print properly. It is recommended that you inspect them in a CAD software before submitting.*

- [Thingiverse](#)
- [Pinshape](#)
- [GrabCAD](#)
- [YouMagine](#)
- [Yeggi](#)
- [MyMiniFactory](#)

[Shapeways](#)- 3D printing marketplace and services

3D Printing at IPPL

- IPPL Cardholders
- 10 cents per gram with \$1 minimum
- 1 print job at a time
- Fill out [form](#) and attach object 1
- 1 color (choose white and paint if multiple colors are needed)

Find more information at:

- [IPPL 3d Printer Page](#)
- [3D Printing Program Handouts](#)

The libraries 3D printer was donated by the [Indian Prairie Public Library Foundation](#)

