

Some Common Uses

Rapid Prototyping
Tool fabrication
Prosthetics
Replacement parts

Home vs. Commercial

Many home printers are open source
Considered “Self-replicating” technology
Supported by many free programs
Many free modifications made by users.

Important Points

First layer adhesion
Don't walk away until you're sure
Materials and temperatures
45° or more overhangs
Position model for the least support
Rafts, brims and skirts
Extruders get blocked!

About Modeling:

Models are made of triangular mesh, a solid model.
Watch for bad areas!
Want to have the lowest possible resolution (number of triangles)
Sculptris has dynamic tessellation, can increase resolution in local area if needed for detail, then reduce it after you finish in that area.

File Formats and their purpose:

- 1) Your model is created in Sculptris, then exported as an **.obj** file.
- 2) Simplify3D takes in .obj file, prepares it for printing and saves it as a **.stl** file. This is the file format needed for 3D printing in general.
- 3) Slicer programs take in the .stl file, prepare it by creating a set of instructions for the specified 3D printer then saving it with a **G-CODE** or **.x3g** (Flashforge Creator Pro) extension. This is the final file of the process and goes directly to the printer either by USB connection or by SD card.

Want to learn more? YouTube it!

Here are a few of my favorites, but there are many!

3D Printing Nerd
Maker's Muse
3D Revolution

Free 3D modeling programs

TinkerCAD (Cloud Based)
Blender
Meshmixer
FreeCAD
Sketchup
Sculptris
OnShape
3D Slash

Free 3D Printer Hosts

Octoprint
Repetier
MatterControl
CraftWare
Cura

Free Slicing Software

Slic3r
Repetier
MatterControl
KissSlicer
CraftWare
Cura

Free STL Checker

NetFabb
3D-Tool Free Checker
MakePrintable

Free STL Editor

MeshLab
MeshMixer

Free STL Repair

NetFabb
MakePrintable
MeshLab
MeshMixer

Free File Downloads

Thingiverse
GrabCAD
Sourceforge
Sketchup
OpensCAD.org
Shapsmith.net