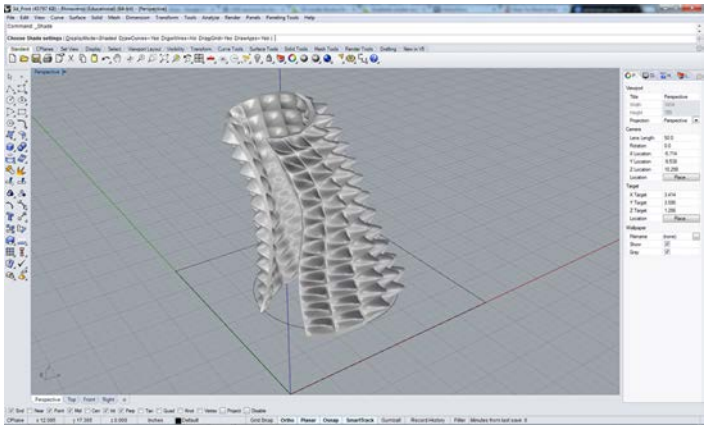
Preparing your File for 3D Printing

3D PRINTER

This tutorial explains how to export your file from Rhino into MakerWare

1) *Open* your Rhino file



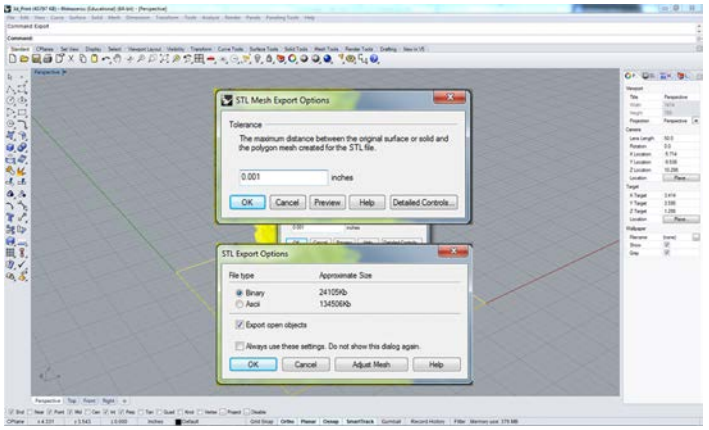
2) Type in the command, **Units**

3) Set your *Units* to **Inches**

4) Fit your Model in the MakerBot printing box:
   X = 11.2”
   Y = 6”
   Z = 6.1”

5) Type in the command, **Export**

6) Select your desired geometries for printing



7) *Export* your file as a ***.stl (Stereo-lithography)** file

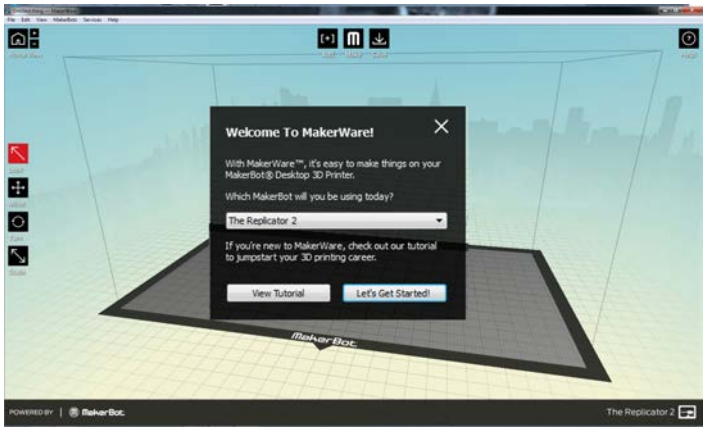
8) Click **OK**

9) Select the **Binary** option

10) Set your **Tolerance** to 0.001”

11) Click **OK**

12) Open the MakerBot software, **MakerWare**



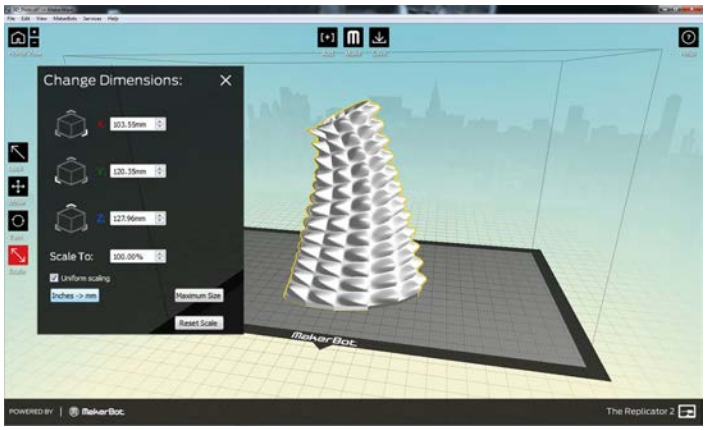
13) Pull down **File** in the Menu Bar

14) Select **Open**

15) Find your saved *.stl file and open it

*If the software asks you to “move the model to the build platform” select **Yes**

16) Click on the **Scale** icon to open the Scale window



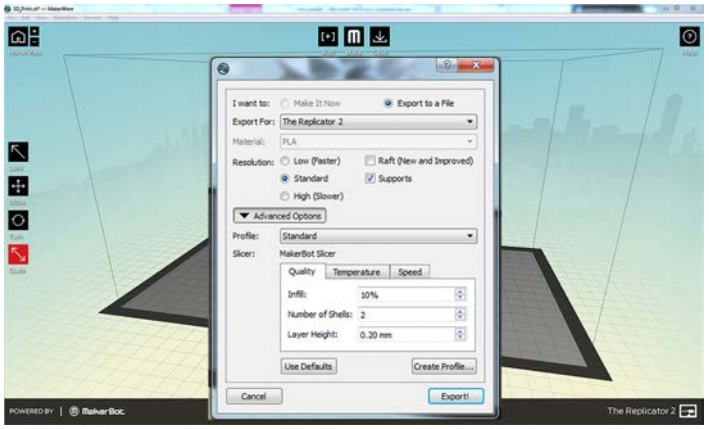
17) Click the box for the converting **mm -> inches**

18) Click **OK**

19) Click the button to **Make It**

This tutorial explains how to take your file from a Rhino Model into Makerware

20) Click to expand the **Advanced** options in the *Make* Window

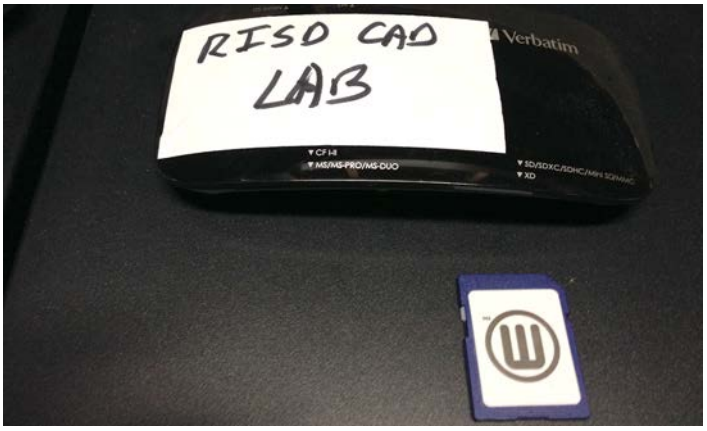


21) Select **Export to a File**

22) Select **Replicator 2** under the *Export For Menu*

23) Select one of the 3 default options for your desired **Resolution** or specify your own parameters under the **Advanced** Tab

> **-Infill** is what percentage of the volume is filled with plastic versus left hollow (lower percentage means less material
>
> **-Layer Height** is how thick each layer is laid (thicker layers mean less time)



24) Click the **Raft** option if you want the print to construct a platform on the bottom of your piece for easier removal from the bed

25) Click on the **Support** option if you have a form that needs to be supported while it's printing to keep from failing (cantilevers, arms, etc.)

26) Click Export

27) Save your file to the Desktop

28) Once saved, move your file to an SD Card to be read by the MakerBot - there is an SD Card reader on top of each computer in the BEB Computer Lab

Loading the MakerBot

3D PRINTER

This tutorial explains how to load/unload your filament into the MakerBot

Loading the Filament

1) Gently pull the guide tube out of the top of the extruder

2) Place your spool of filament on the back of the MakerBot - make sure the spool unwinds counter-clockwise

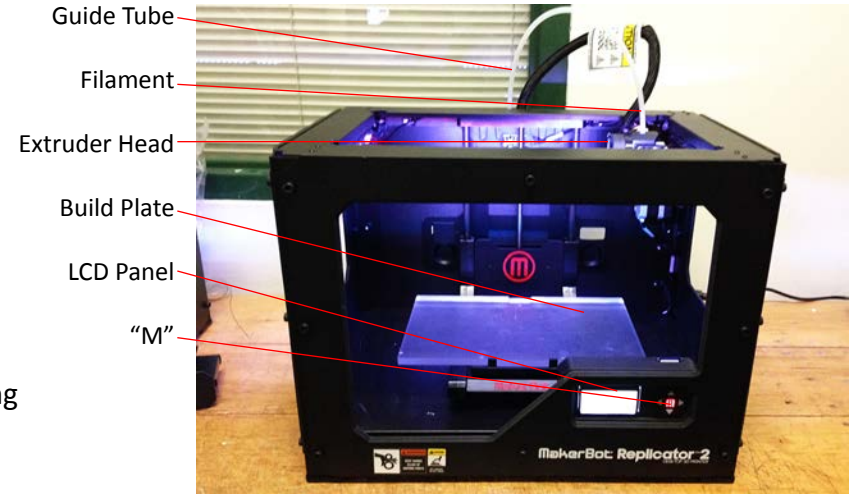
3) Press the “M” on the MakerBot to begin heating the extruder

4) After the extruder heats up to temperature, press the “M” to continue.

5) Push down on the Extruder Arm located on the side of the Extruder Print Head

6) Once prompted by the LCD panel, hold down the Extruder Arm and push the end of the filament into the extruder until the automatic feed grabs the filaments on its own.

7) Once plastic begins to leak out of the extruder nozzle, press the “M” button to finish loading the filament.



Unloading the Filament

1) Scroll down on the MakerBot LCD Monitor until you arrive at “Preheat”

2) Press the “M” button to accept

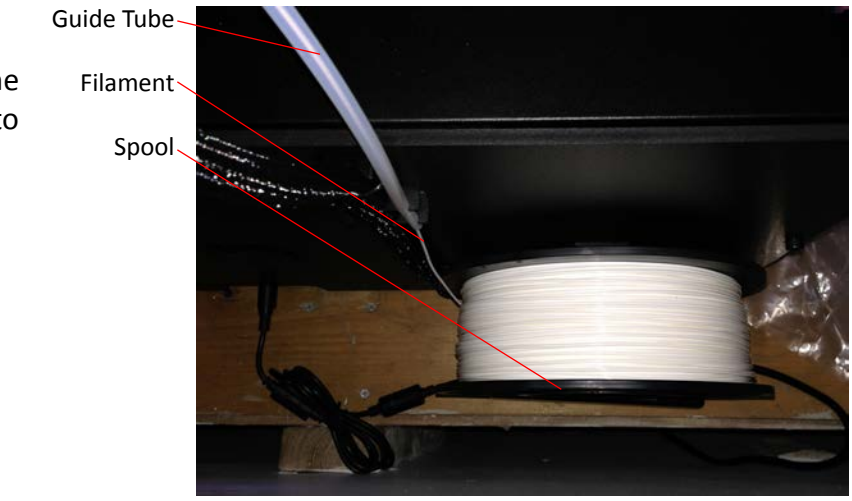
3) Select “Start Preheat”

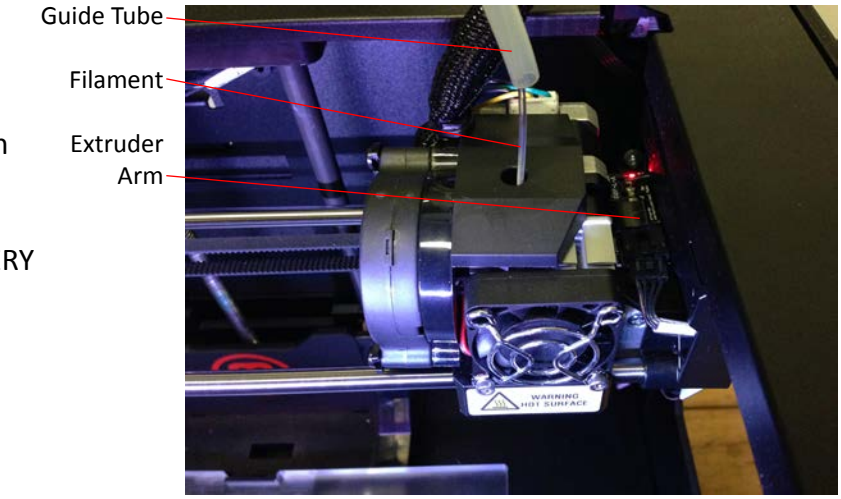
4) Once the Extruder as reached temperature, push down the Extruder Arm

5) Continue to hold down the Extruder Arm and VERY GENTLY pull the filament out of the Extruder

6) Release the Extruder Arm

7) Press the “M” button to finish





How to Level the Build Plate

3D PRINTER

This tutorial explains how to level the Build Plate before printing

* You will need a piece of paper or thin sheet to level the build plate *

1) On the MakerBot's LCD Menu, press down until you get to the Utilities option

2) Press the "M" button to accept

3) Select the Option "Level the Build Plate"

4) This option will lead you through a step-by-step guide for leveling the build plate.

5) First you will twist the leveling knobs 4 complete turns to drop the build plate

6) The script will prompt you to twist leveling knobs on the bottom of the build plate to achieve level.

7) Once you've checked 6 different positions, press the "M" button to finish leveling