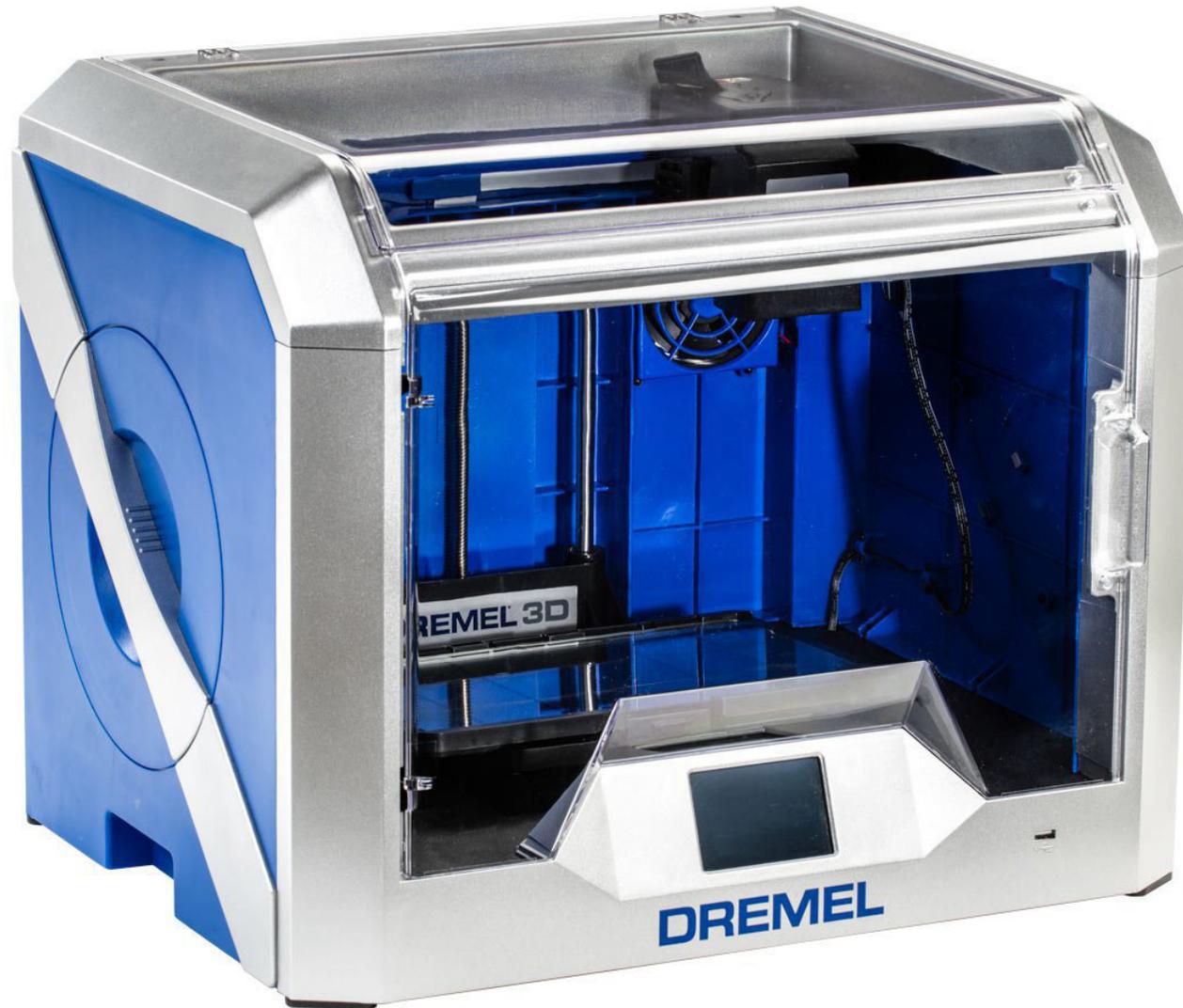


# Dremel 3D Printer 3D40 Workflow

Computation + Construction Lab | Iowa State University

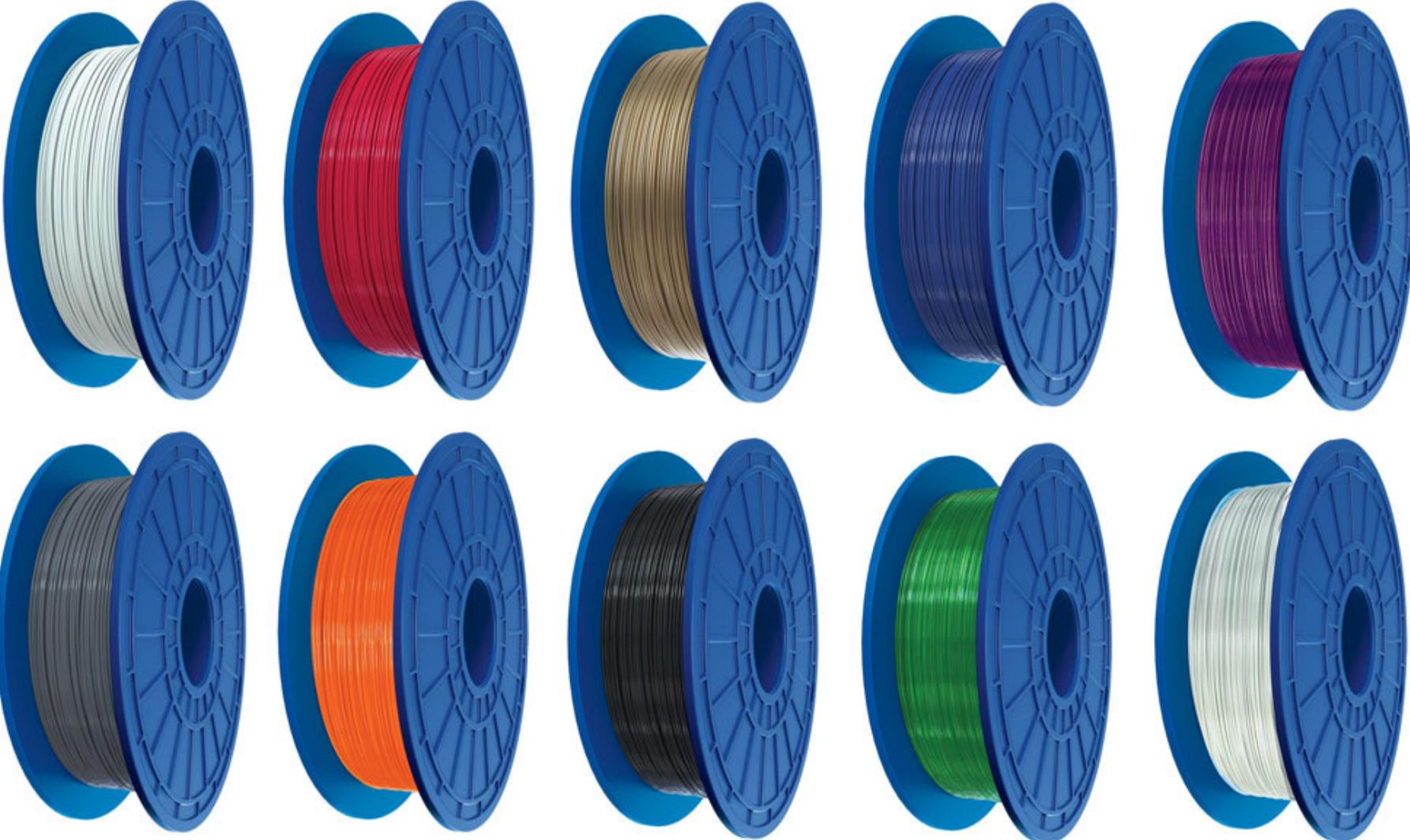
## Dremel Idea Builder 3D40

If you have any technical issues with this 3D printer please contact Dremel 3D Idea Builder Support or the CCL Associate.  
Build Volume 10" x 6" x 6.7"



# Material

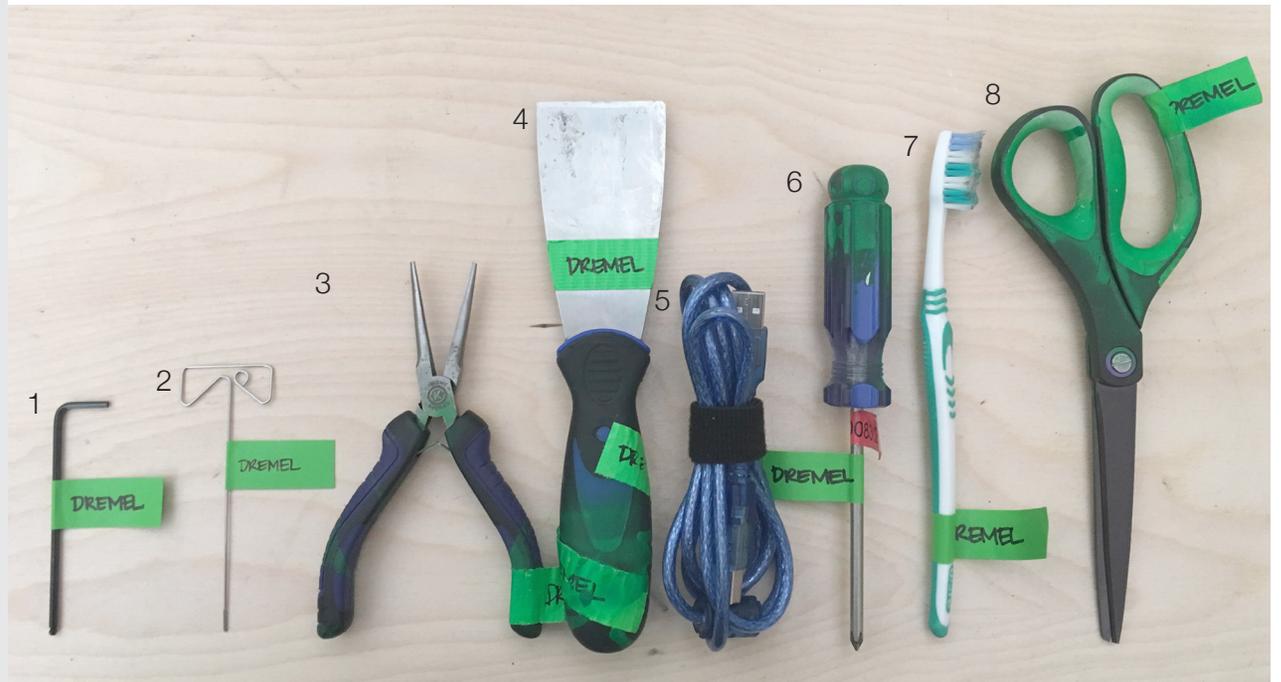
Only Dremel PLA Filament 1.75mm Diameter, 0.5 kg can be used in these printers.



# Hardware

After using these tools please make sure to return them to the grey container labeled Dremel Tools.

1. 4mm Allen wrench
2. Unclogging Tool
3. Needle Nose Pliers
4. Scraper
5. USB A to USB B cable
6. Phillips Screwdriver
7. Toothbrush
8. Scissors



## Software



## Design Setup

- RhinoCeros (make sure to export in mm) or whatever you feel comfortable using. A range of softwares can be used to setup an STL File.
- You may also choose to fix your STL or add supports in a variety of programs such as; Meshmixer, Netfabb, etc. These programs can be downloaded for no cost online.

## Dremel Setup

- 3D Ideal Builder allows for STL modifications such as scale, layout, repair, and support generation. This program also enables one to preview their model prior to printing.
- This program exports the model into right format (.g3drem) for Dremel Printing.

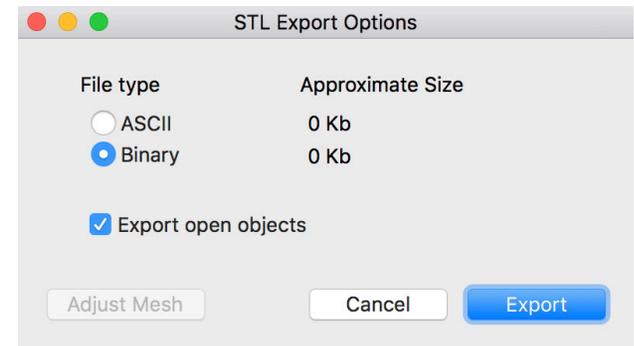
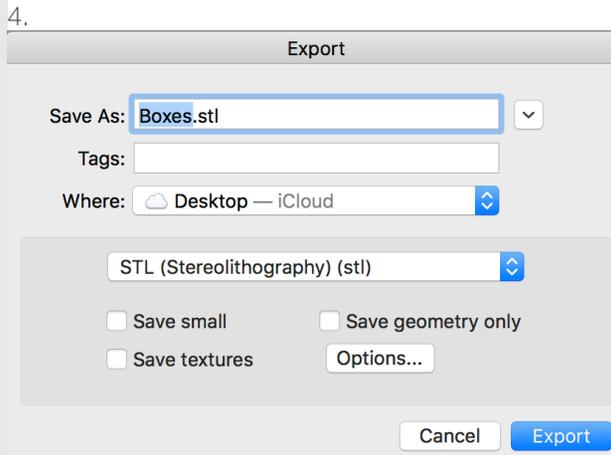
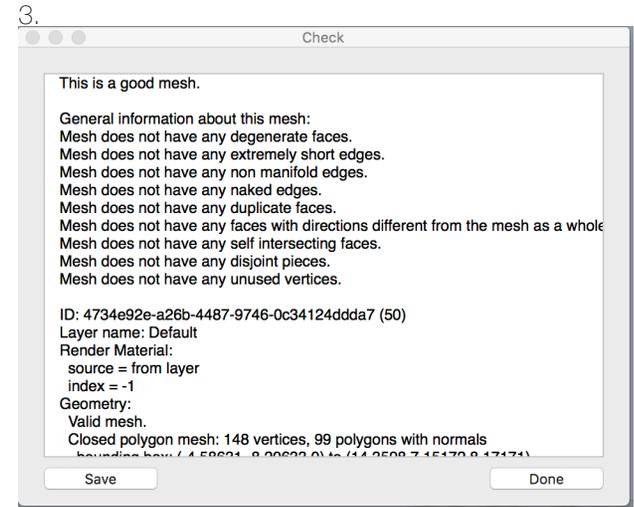
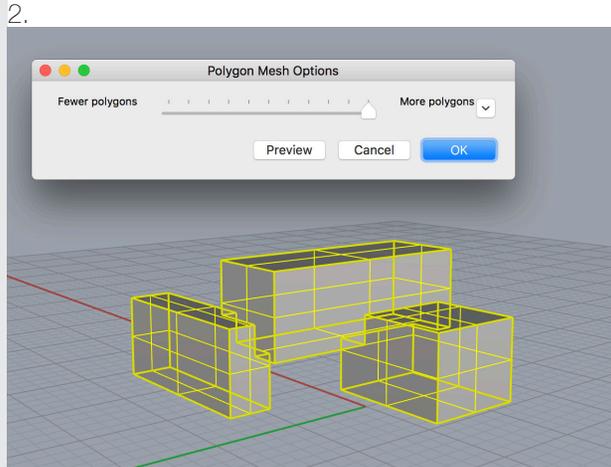
## Printing

- Printing with an SD card. Put SD into computer > Select file > Save Gcode in Cura and choose the SD card location to save your Gcode to your SD card. Insert SD Card into the Graphical LCD Controller.
- Print directly from a computer using Cura and a USB A to USB B cable.

# Creating a Mesh in Rhinoceros

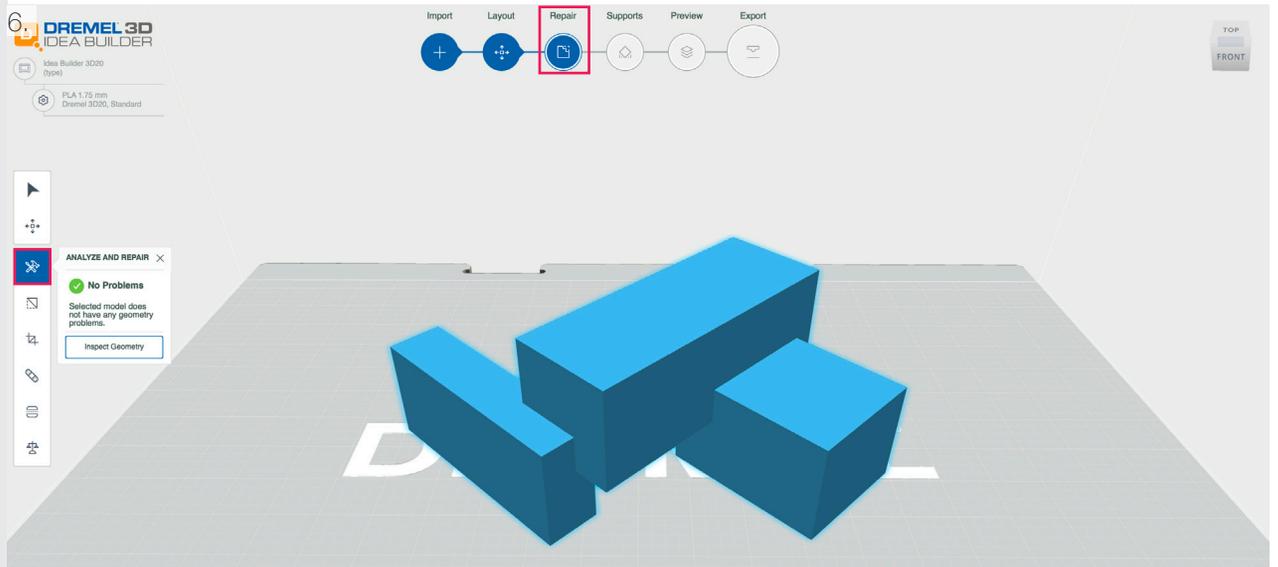
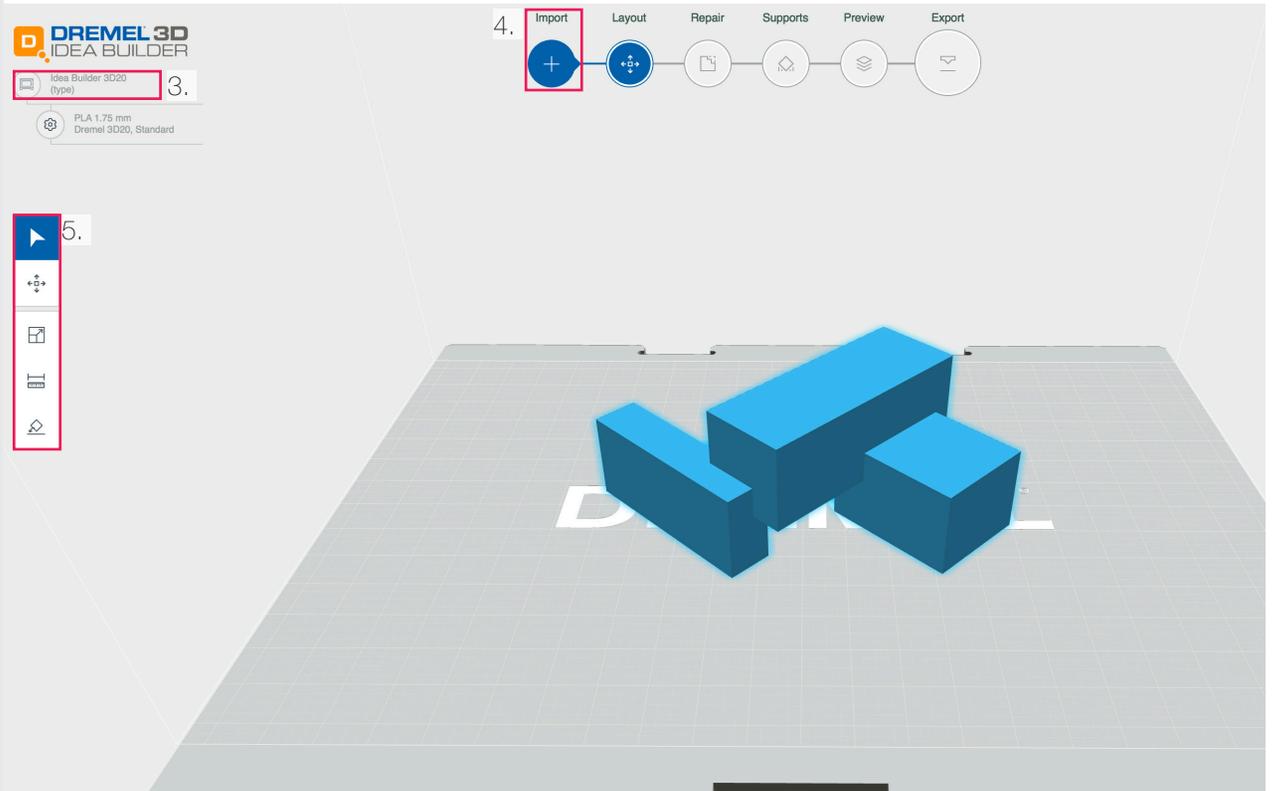
1. BooleanUnion your model. Then select your 3D model.
2. Type mesh to convert your polysurface.
  - Choose more polygons
  - Tip save a copy of your polysurface.
3. Select your mesh, type check.
  - If your mesh is bad, type unifymeshnormals
4. Change your units to millimeters! Export the mesh as a binary .stl file.

Tip:  
This example model was made quickly and was just an example of a model that would need support material. If your model is super basic like this consider hand cutting or using a laser cutter.



## 3D Idea Builder Software

1. Make an account on the Dremel 3D Idea Builder website.
2. Download and install the Autodesk PrintStudio Software from the Dremel 3D Idea Builder Website.
3. When opening the software it will ask you a variety of questions including which printer you are using. Select Dremel Idea Builder 3D20 or 3D40.
  - Tools along the lefthand side will allow you to select, move, scale, measure and rotate your model(s).
4. Import your model
5. In Layout you will be adjusting your model(s) to fit on the build plate.
  - Tools along the lefthand side will allow you to select, move, scale, measure and rotate your model(s).
6. After you are finished laying out your model(s) select Repair at the top of the window.
  - Select the hammer and screwdriver icon on the left to analyse and repair your STL



7. Select Supports

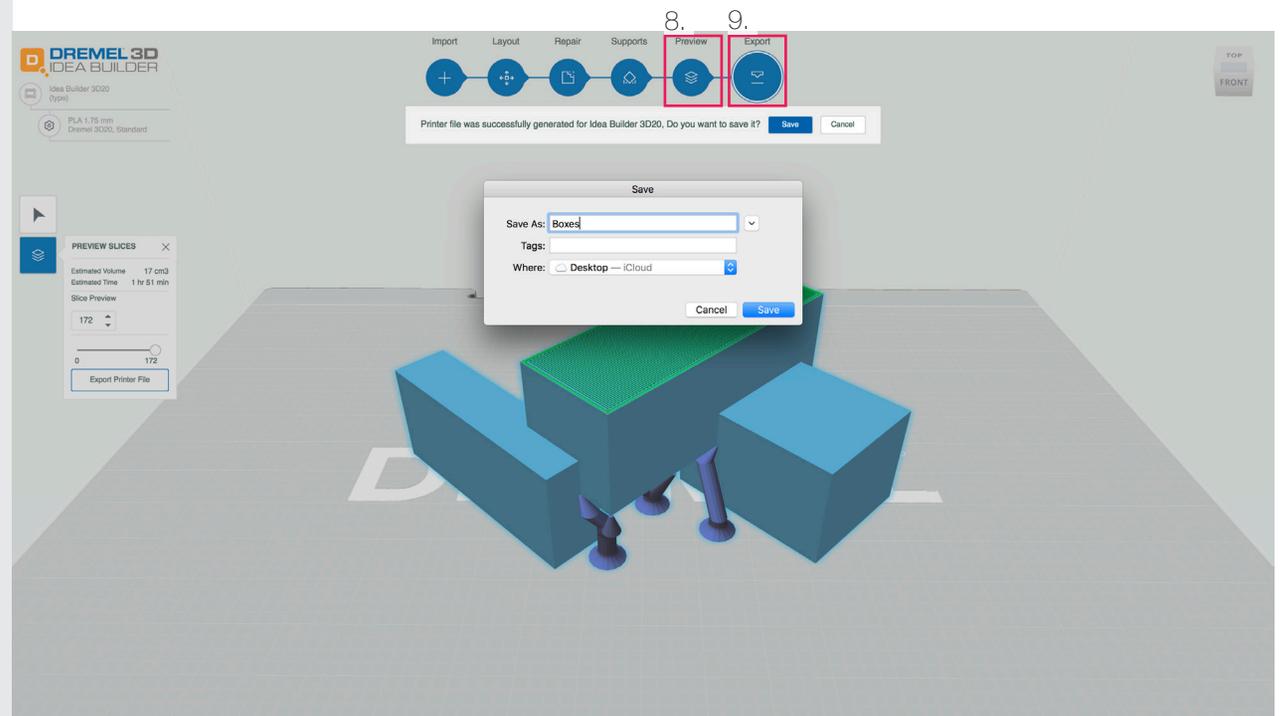
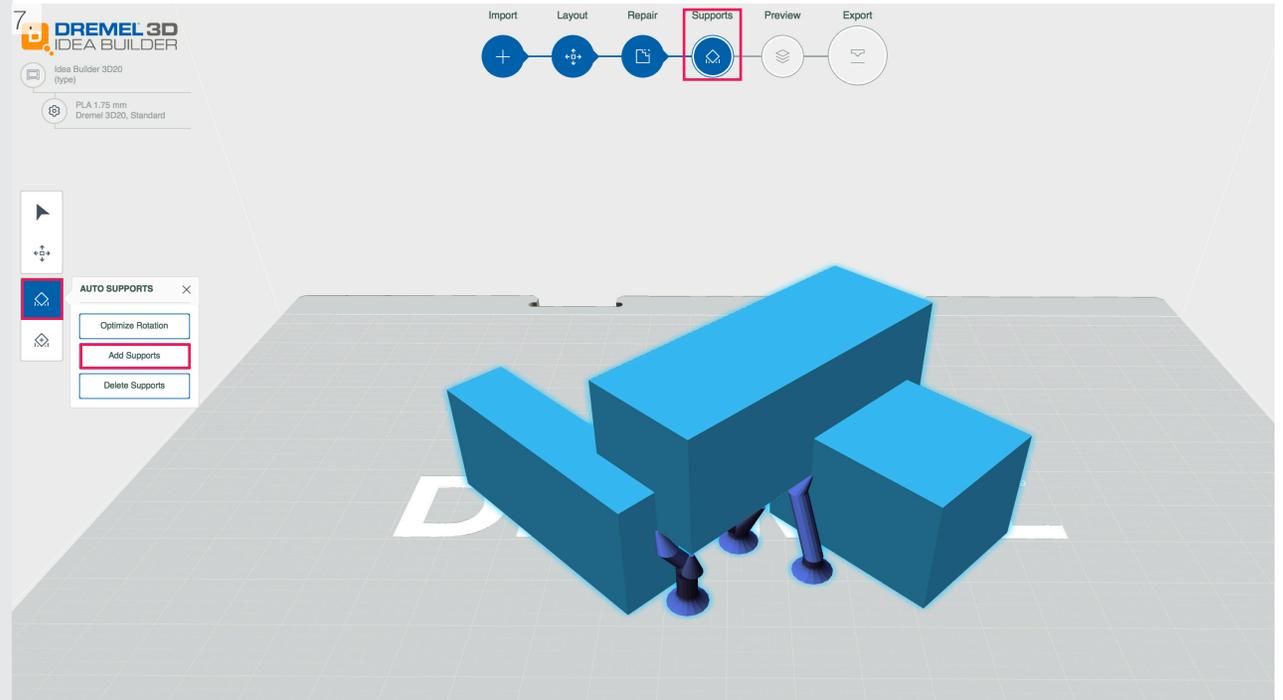
-If you have a model without large overhangs you probably can get away with using no supports.

8. Preview allow you to view your sliced model.

9. Final export your model to an SD card or USB flashdrive. You can upload directly from your laptop with a USB A to USB B cable but it is less reliable.

Tip:

This example model was made quickly and was just an example of a model that would need support material. If your model is super basic like this consider hand cutting or using a laser cutter.



# Filament Dremel 3D40

## Installation + Removal

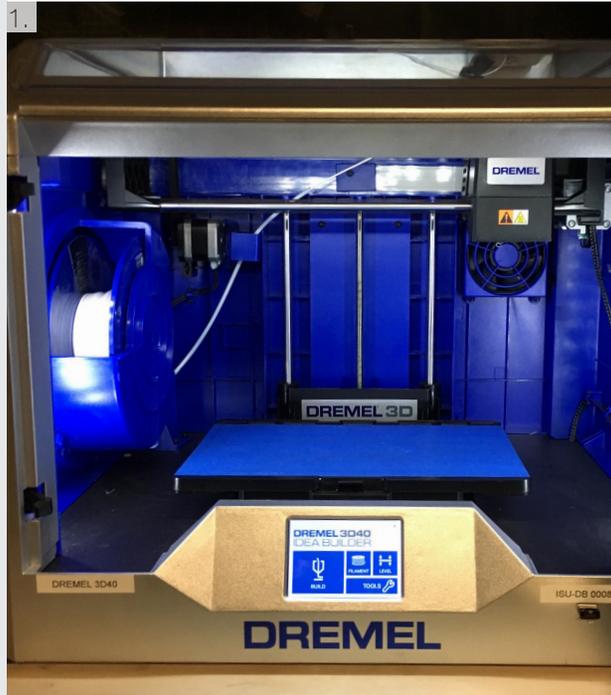
1. Raise lid and remove the filament cover
2. Turn ON the printer (power button is on the right side of the printer), press FILAMENT.
3. Follow directions on the touch screen.
4. Remove and replace filament while the printer is heating.



# Leveling Build Platform 3D40

## Installation + Removal

1. Remove front door of printer.
2. Turn ON the printer (power button is on the right side of the printer), press LEVEL. Then wait as it verifies the build platform is level.
3. Follow directions on the touch screen if the build platform is too low or high. Then press VERIFY.
4. Wait until the level is completed.



2.



3.



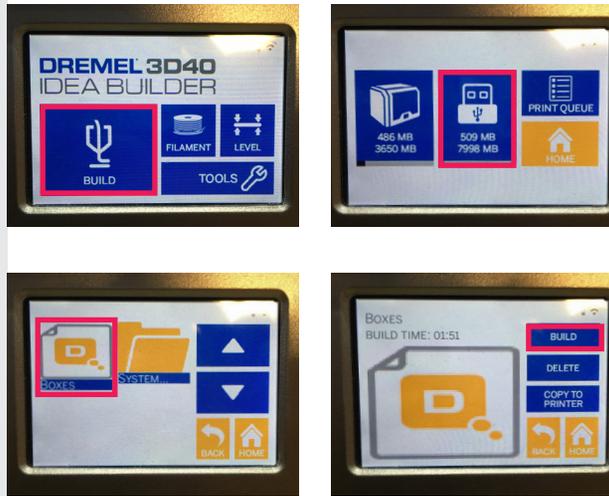
4.



# Printing Dremel 3D40

1. Press BUILD > Thumb Drive Icon. The icon of the printer has some default prints that came with the printer. Use the up and down arrows to locate your file. In the accompanying images, the file is Boxes, but instead select the file you created. Then press build. Wait for the printer to reach the proper heat. Then it will start to print.
2. You can STOP or PAUSE your print. STOP will terminate your print. The filament icon allows you to change your filament if you are running low or if you want to change color midprint. You will not be able to select this icon until you have paused the print.
3. Once the print is finished remove the build platform from the printer.
4. Use a scraper to remove your print. If you used support material, remove it with a needle nose pliers. After using these tools please make sure to return them to the grey container labeled Dremel Tools.

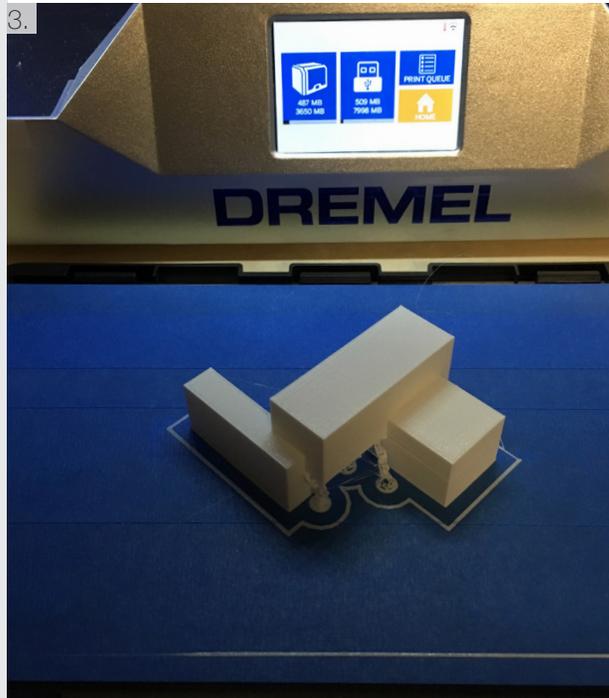
1.



2.



3.



4.

