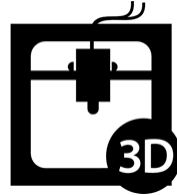


## Bambu 3D Printer Overview



The 3D printing process involves building up layer upon layer of molten plastic to create an object. As each layer sets, the next layer is printed on top and the object is built up.

To make a 3D print, a digital file is needed that tells the 3D printer where to print the material. Yololab primarily uses .stl files, but other file types are supported.

3D printers can print these layers at different thicknesses, known as layer height. Like pixels on a screen, more layers in a print will give a higher 'resolution'. This will give a smoother product in exchange for increased print time.

Yololab has two Bambu Lab X1-Carbon 3D Printers with AMS. The print bed size is 256×256×256 mm (10"×10"×10").

### Materials

Yololab provides PLA, PETG, and PLA CF 1.75mm filament for these 3D printers. Many colors are in stock. Outside Filament must be compatible with Bambu printers and verified by makerspace staff.

### Important Terms

#### IMPORTANT TERMS:

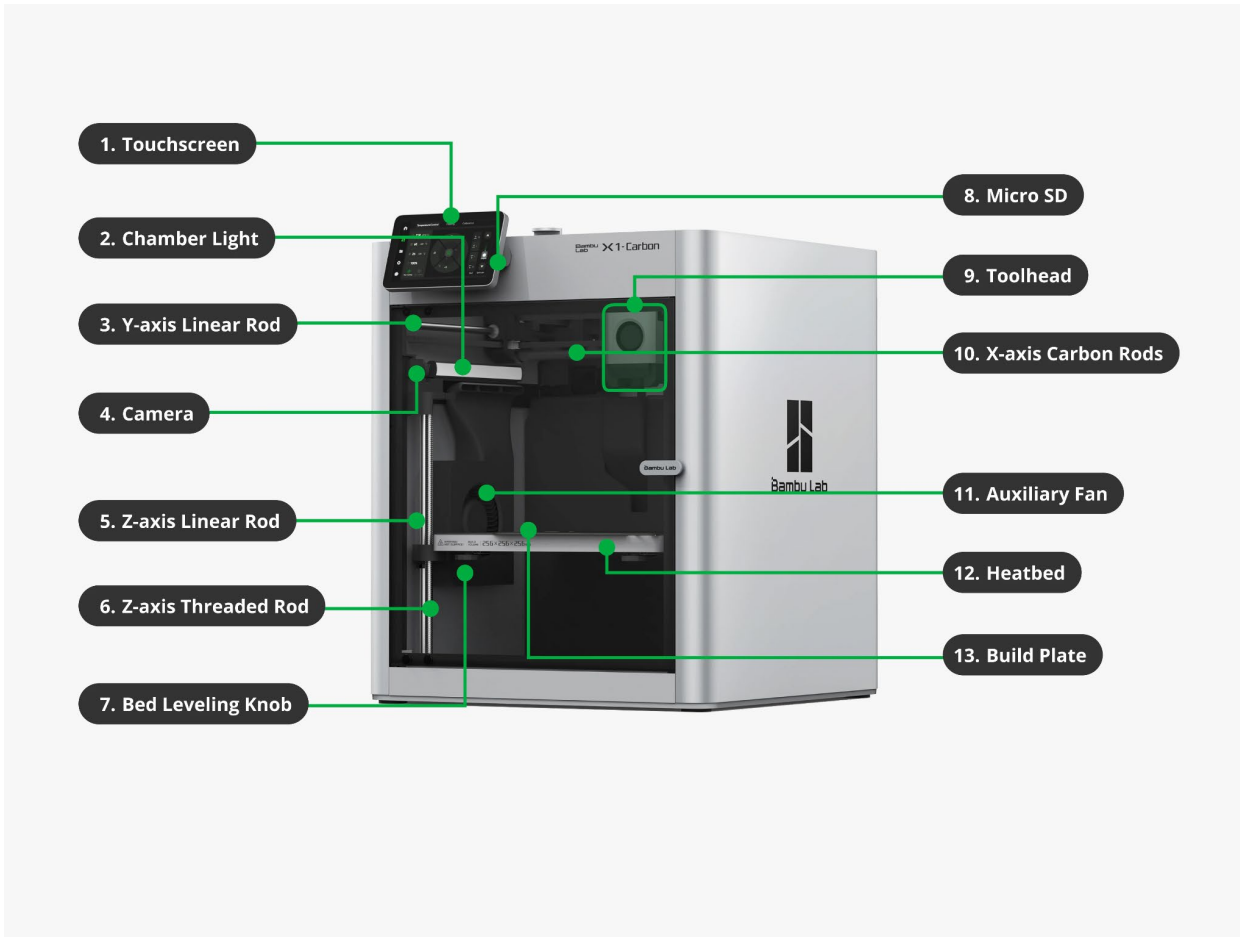
**Filament:** The printer's 'ink.' Filament comes on spools and is fed into the printer.

**Slicer:** The program used to prepare your 3D model for printing.

**Support:** Extra structure to hold up or support parts of the print, especially overhanging parts.

**Brim:** Extends the bottom layer of your print for better surface contact and adhesion. Requires removal from the finished print.

## Printer Parts



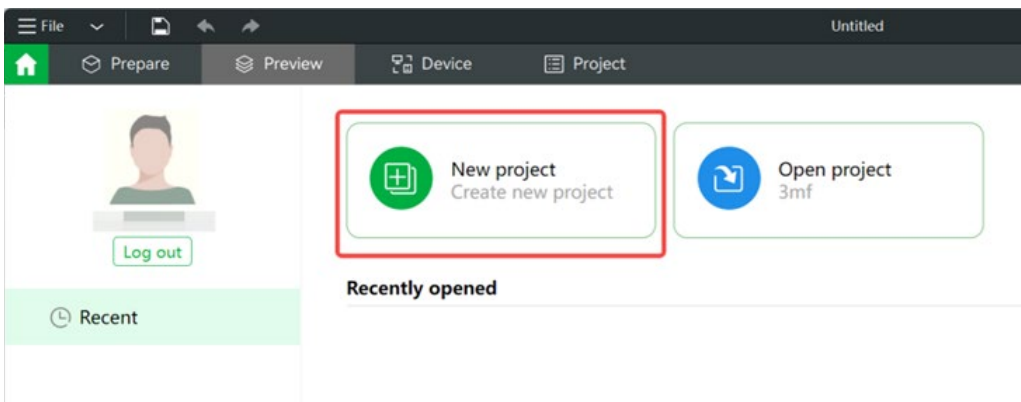
Every print starts with a slicer program.

Open Bambu Studio.



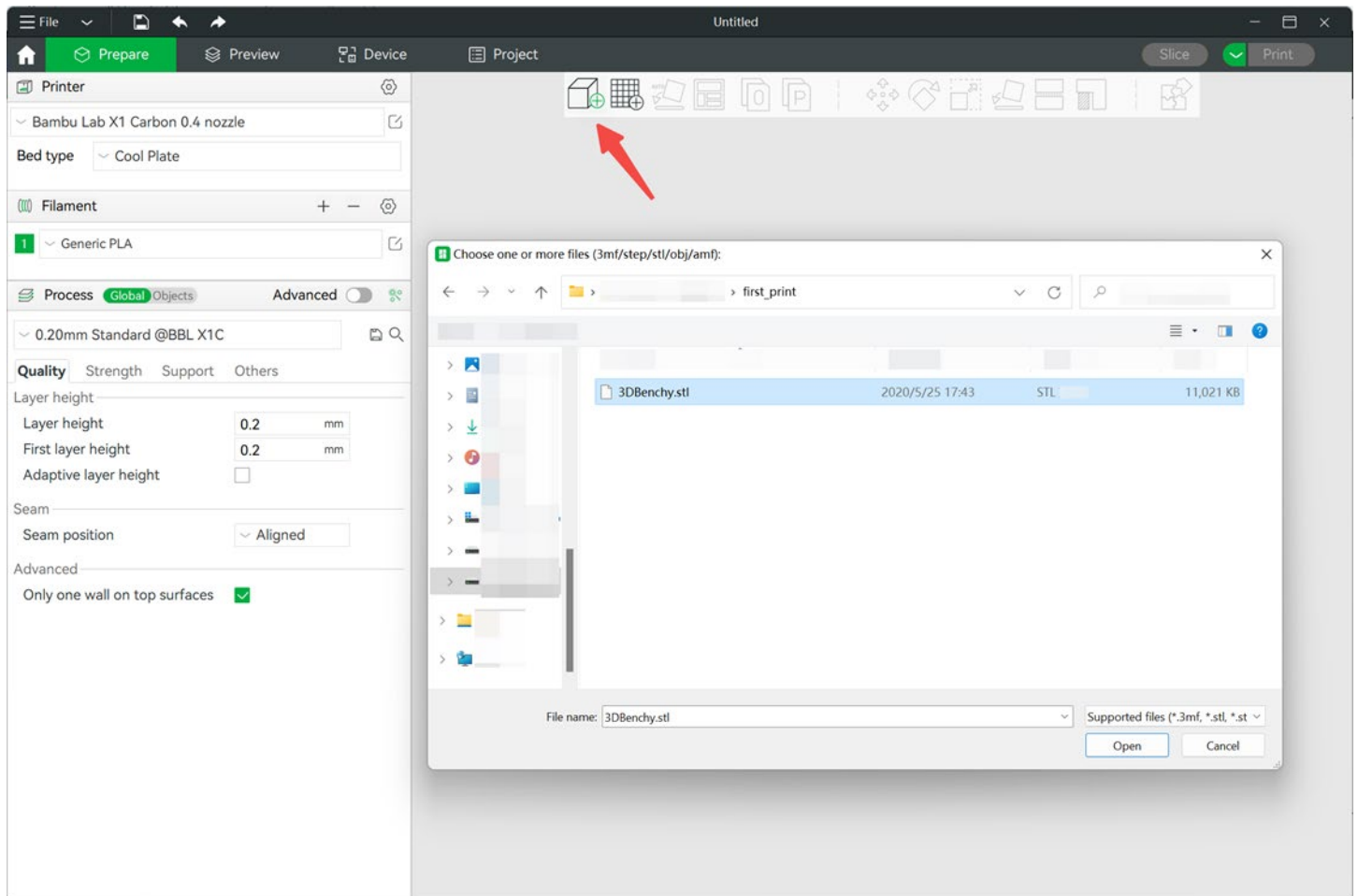
Create a new project

To start slicing a model, click on **New Project**.



## Add a model

On the top toolbar of the preview pane, click on the first icon **add** to import a model. You can also drag and drop model files from a folder into Studio. Supported files include .3mf .stl .stp .step .amf .obj.



## Move



To move your model around the plate, click on your model then the move icon on the toolbar.

## Rotate



To rotate your model, click on your model then the rotate icon on the toolbar. You can rotate around the X, Y or Z axis.

## Scale



To scale your model, click on your model then the scale icon on the toolbar. You can either type the exact dimensions in the pop-up menu or grab the handles that appear on your model and move them.

## Flatten

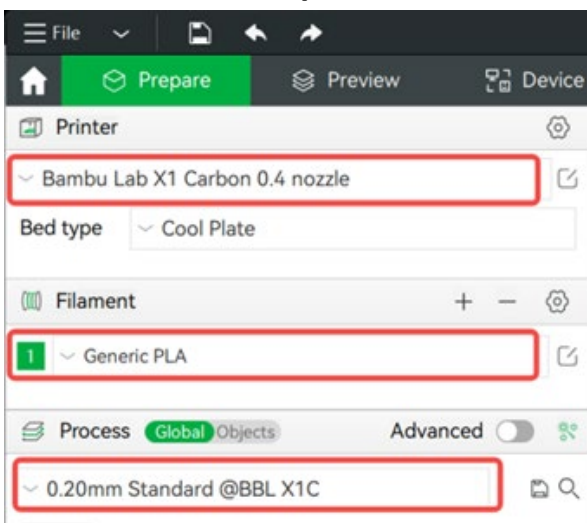


To flatten your model onto the plate, click on your model then the flatten icon on the toolbar. This is useful if you have rotated your model and it is floating off the print surface.

## Select Printer/Process presets

To start slicing the model, you need to choose the presets for the machine you are using, for the filament you will print with, and the settings you want to print the model in.

1. Select the printer you are using from the drop-down list under **Printer**. This will also include the nozzle size you will be printing with. (Bambu X-1 Carbon .4mm nozzle)
2. Choose the layer height you want your model to be printed in from the **Process** drop-down menu. **Always remember that the smaller the layer height, the longer the print will take. For most prints, a 0.20mm layer height is acceptable.**



## Changing Filament

Bambu X-1 Carbon printers can print up to four colors simultaneously using the Automatic Material System (AMS), sitting on top of the printer. Decide which materials and colors you will be using for your print. **NOTE: PLA and PETG will not adhere to each other. Make sure the filaments you are using together are compatible.**

1. To unlock the AMS, turn the latches on either side of it. This will allow you to open the lid and access the filaments currently in the printer.



2. To remove filament, gently turn the spool towards the back of the machine to wind it out of the machine. *If the filament seems stuck, check the filament status screen on the printer, find the stuck filament, and press "unload."* Run the end of the filament through the furthest set of holes along the rim of the spool to prevent tangles. Replace the filament in its box and to the proper storage.



3. Take your chosen material out of the box, take the filament out of the holes on the side of the spool and feed it into the receiver on the AMS. You will need to press the grey lever back to allow the AMS to engage the filament. Once the machine starts pulling the

filament, it will discover Bambu filament properties automatically.



## Multi-color printing

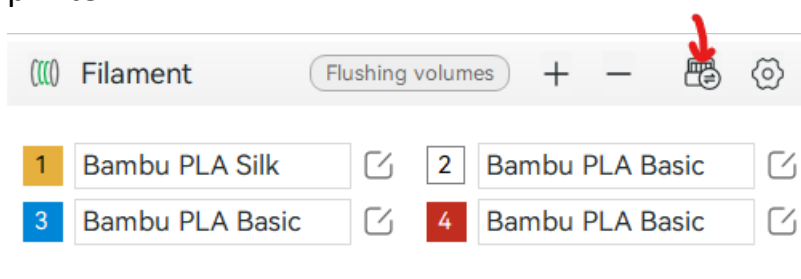


Welcome to the colorful world! Multi-Color printing is one of the most amazing features of Bambu Studio. After importing a model, you can complete a colorful model in just several steps:

1. Change Filaments in the AMS and Sync the filaments to Bambu Studio.
2. Colorize the model.
3. Slice & Print.

### Sync Filaments in the AMS

Once you have changed filaments to your desired colors, sync filament settings from the printer.



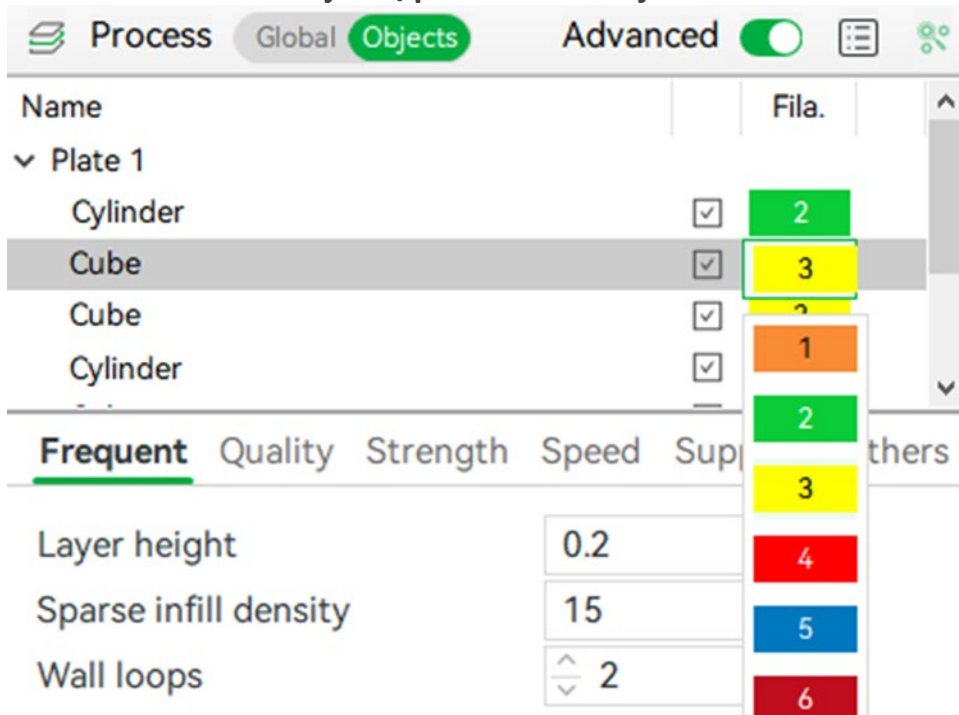
### Colorize Your Model

Bambu Studio provides versatile colorizing tools for various types of models.

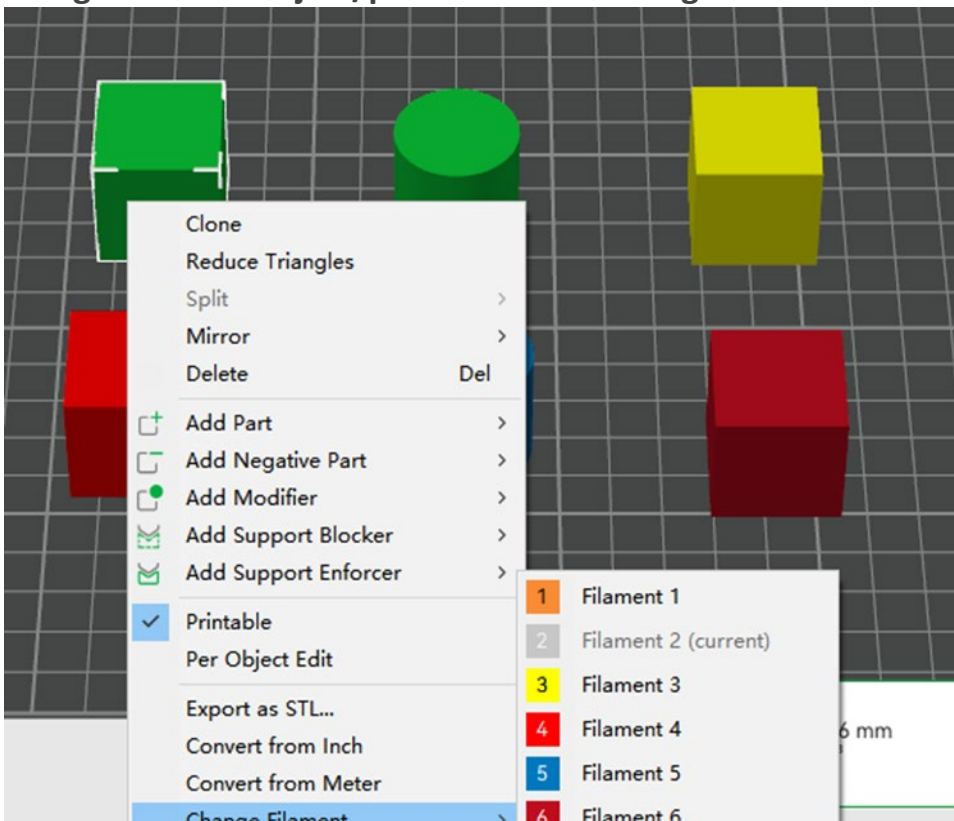
### Set filament for object/part

You can bind a filament to an object or part in multiple ways:

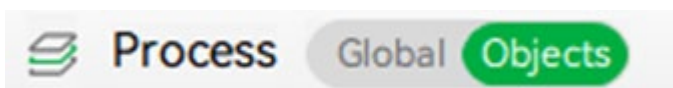
Select filament for objects/parts in the object list on the left sidebar



Or right click an object/part and select change filament and select the new filament.



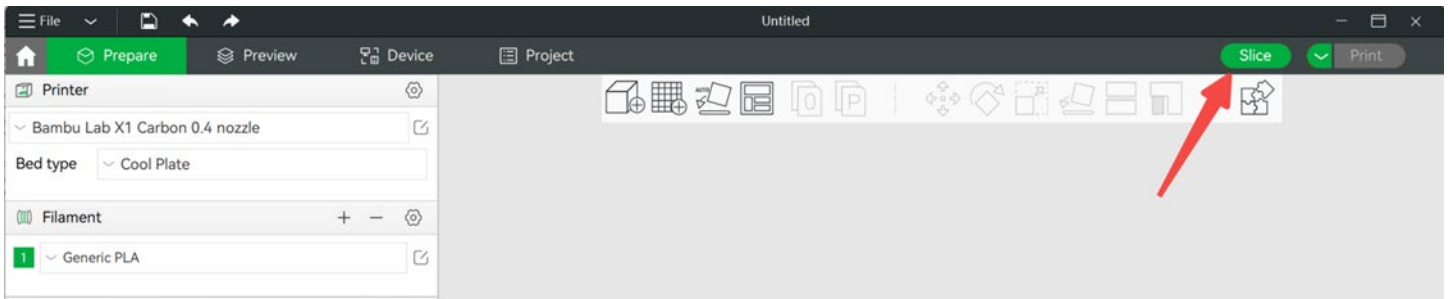
Tip: If you don't see the object list, you need to switch to Global/Object mode here



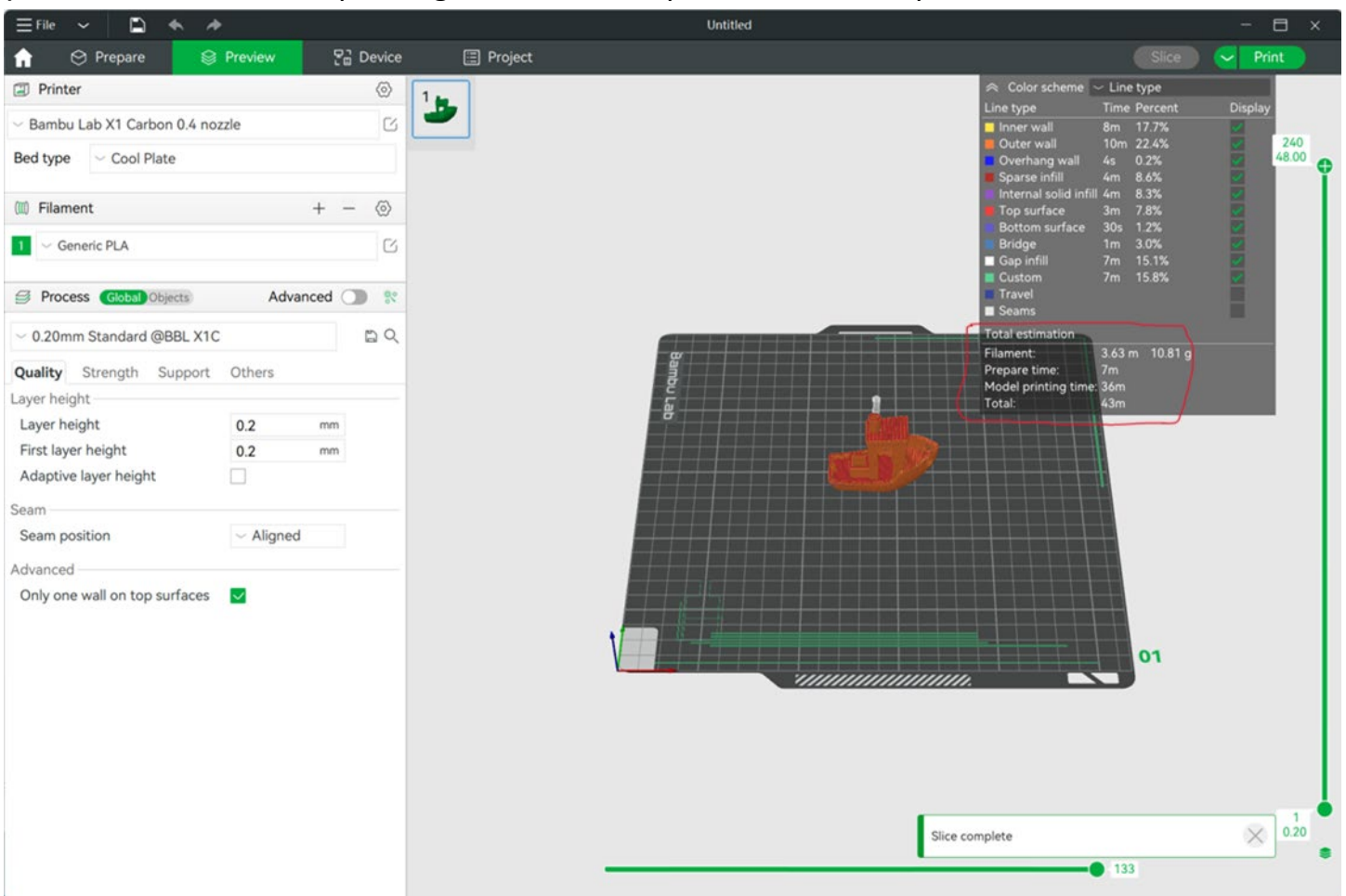


## Slice plate

Once done, click on the **Slice** button located on the top hand right of Bambu Studio. This will generate a .3mf file which is the file format used for the printer to be able to print the model.



Once done, the slicer will take you to the Preview pane which will show you what the sliced model looks after processing the .3mf file. The histogram on the right-hand side will also show you information on the printing times for each parameter of the print.



## Print Plate

Once you have sliced your model, click print in the top right corner of the screen. Make sure to select the correct printer to send your model to. Finally, click Send on the pop-up window.

## Finishing the print

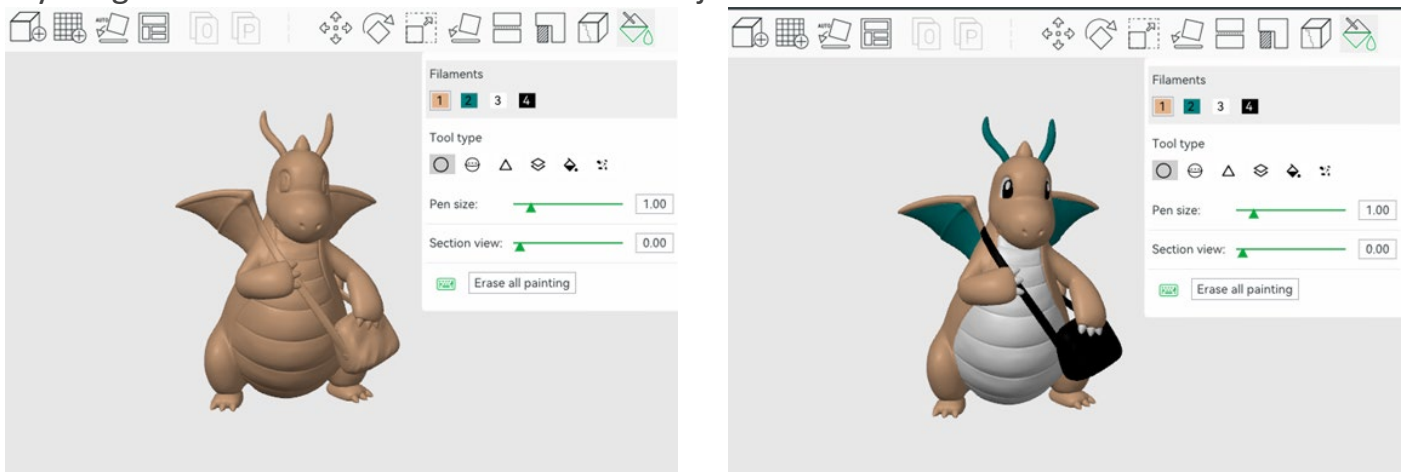
When the print has finished, the bed will move back to its original position.

Wait until the bed has returned to its original position before removing the print by popping it off the bed. If it is stubborn, you can pull the top of the bed off (it is magnetic) and lightly bend the plate until it pops off. Be sure to correctly reset the plate back onto the machine afterwards.

Remove any remaining filament from the build plate and you're good to go.

## ADVANCED: Paint on an Object

Bambu Studio provides a powerful [Color Painting](#) tool. This tool allows you to paint almost anything in different colors on the selected object.



The left image shows the original model and the right image shows the painted model.

For more information on how to paint your model, visit the [Bambu page about the Color Painting tool](#).

## Overviews and How-Tos

[Bambu Studio Video Channel](#) - You do not have to watch these for certification, but there is some great information here.

[Painting finished prints](#)

## Free 3D Print Files

[Thingiverse](#)

[PrusaPrinters](#)

[YouMagine](#)

[NIH 3D Print Exchange](#)

[Printables](#)

[GrabCAD Library](#)

[NASA](#)

[Dremel Lesson Plans](#)

[Instructables](#)

[British Geological Survey](#)

[Morphosource](#)

[Smithsonian](#)

## Free CAD programs

[Tinkercad](#)

[Vectary](#)

[Meshmixer](#)

[SculptGL](#)

[ZBrushCoreMini](#)

[SketchUp Free](#)

[Wings 3D](#)

[Leopoly](#)

[BlocksCAD](#)

[Blender](#)

## Safety

[User Manual](#) - Safety Guidelines

## Legal Concerns

The Library's 3D printers may only be used for lawful purposes. Do not print items that that are:

- Prohibited by law

- Unsafe, harmful, or dangerous

- Obscene

- In violation of another's intellectual property rights (trademark, copyright or patent)

The Library reserves the right to refuse any 3D print request. The Library cannot guarantee model quality, stability, confidentiality, or awesomeness.

## Certification

Certification is required before independent use of the machine. Certification entails reading this document and [answering a few questions](#). You must be 15 or older to get certified.

**Once you have read the information and answered the questions, a demonstration of the material to a staff member is required by doing a basic print following all the correct steps.**