

# 3D PRINTING: FORMLABS



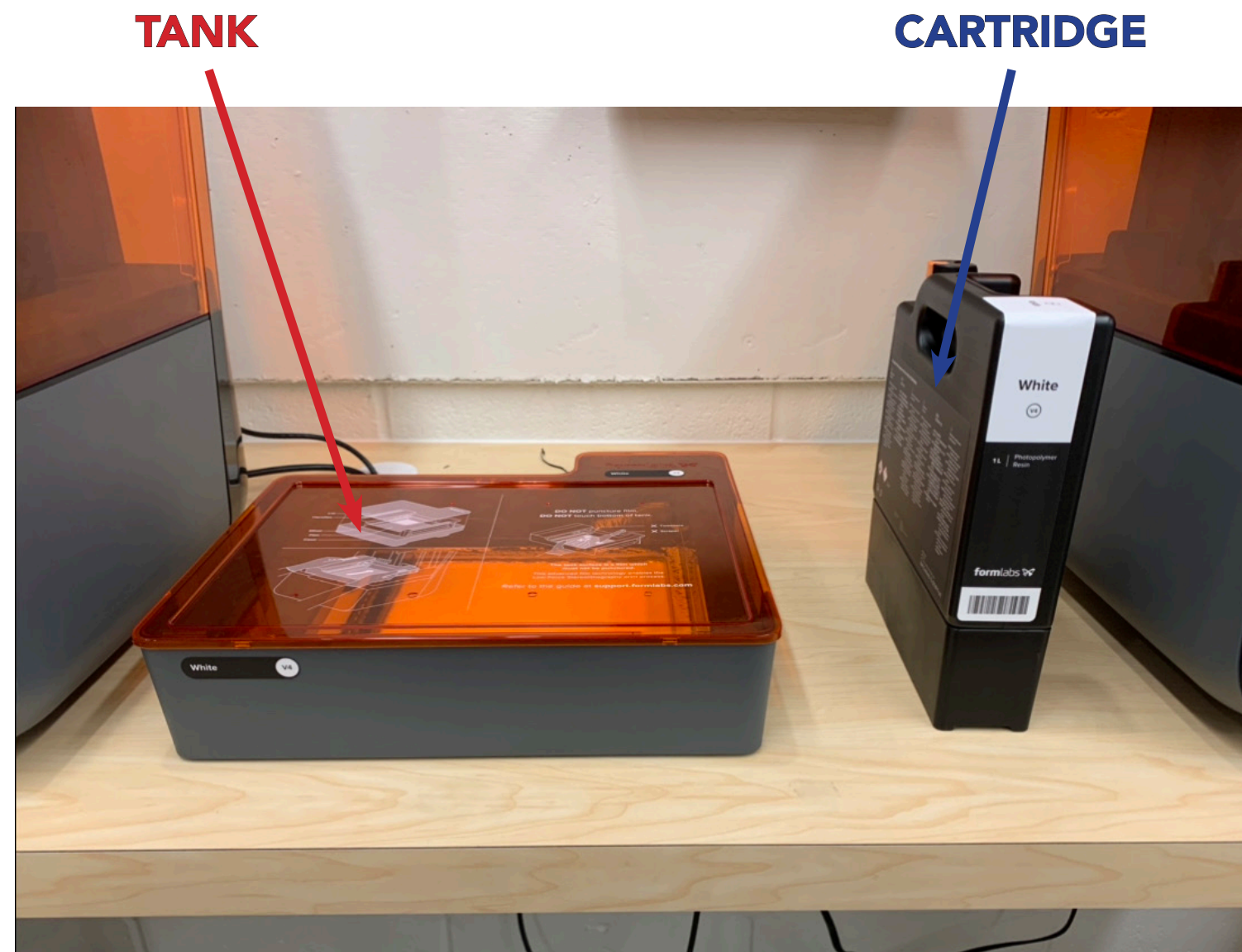
**DIGITAL FABRICATION LAB**

**TUTORIAL BY: RYAN PLOWMAN**

# PRINTER PRIMING

**STEP 1:** LOCATE THE TWO MATCHING PIECES THAT YOU WILL LOAD INTO THE 3D PRINTER. THE WOOD CABINET WILL HAVE OUR LIBRARY OF RESIN TYPE/COLOR.

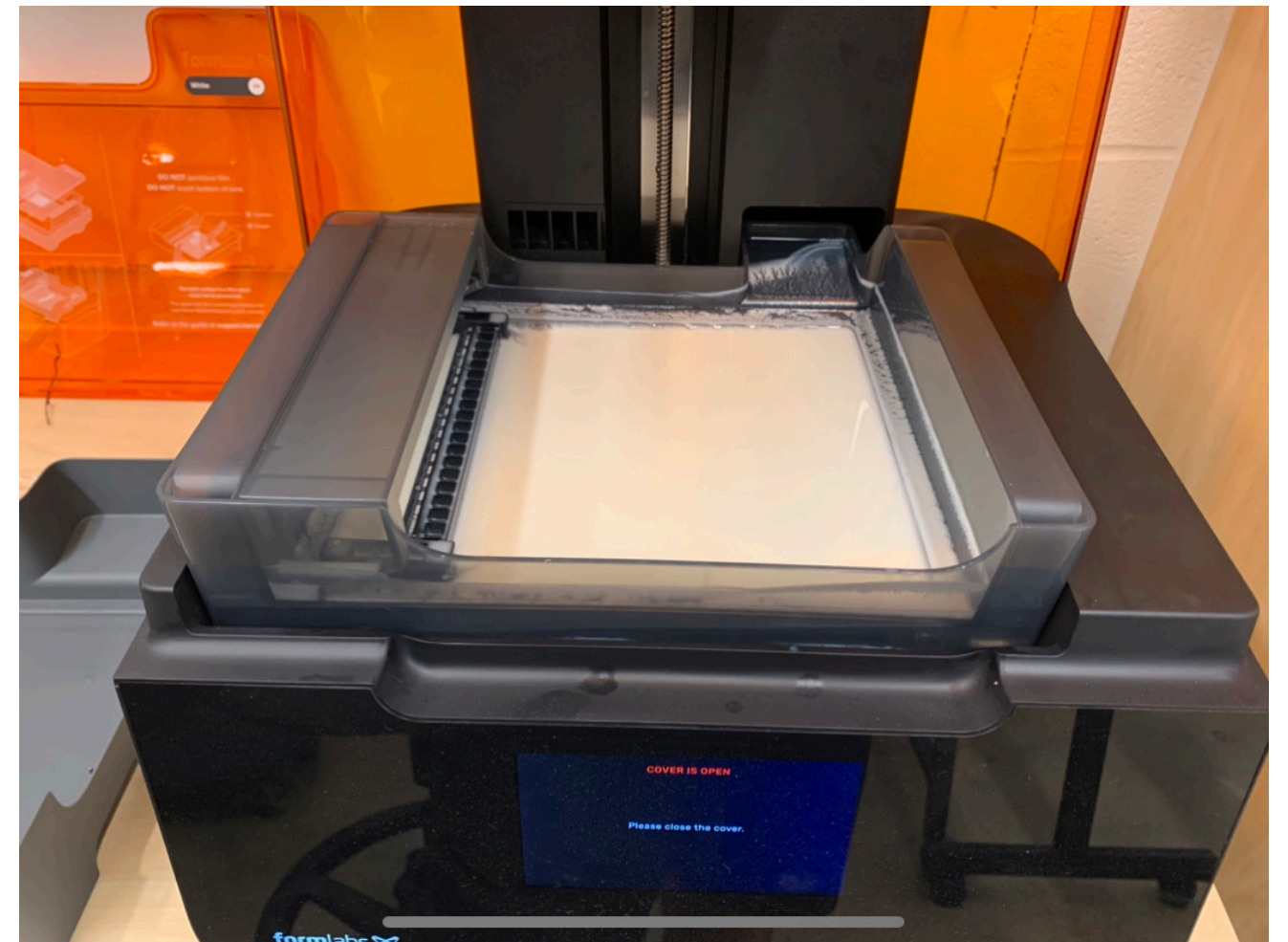
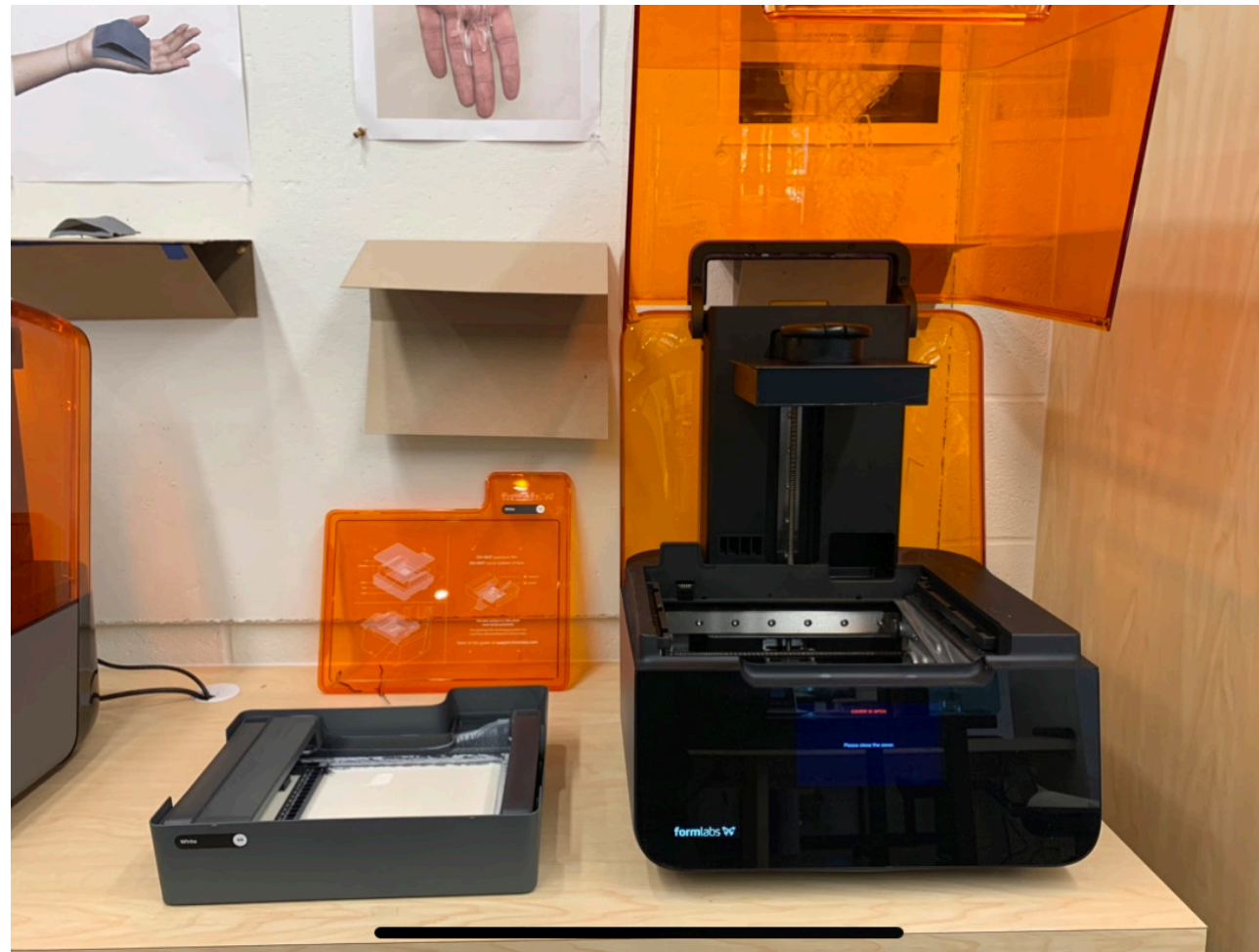
THE PIECES YOU ARE LOCATING ARE THE **TANK** AND **CARTRIDGE**



# PRINTER PRIMING

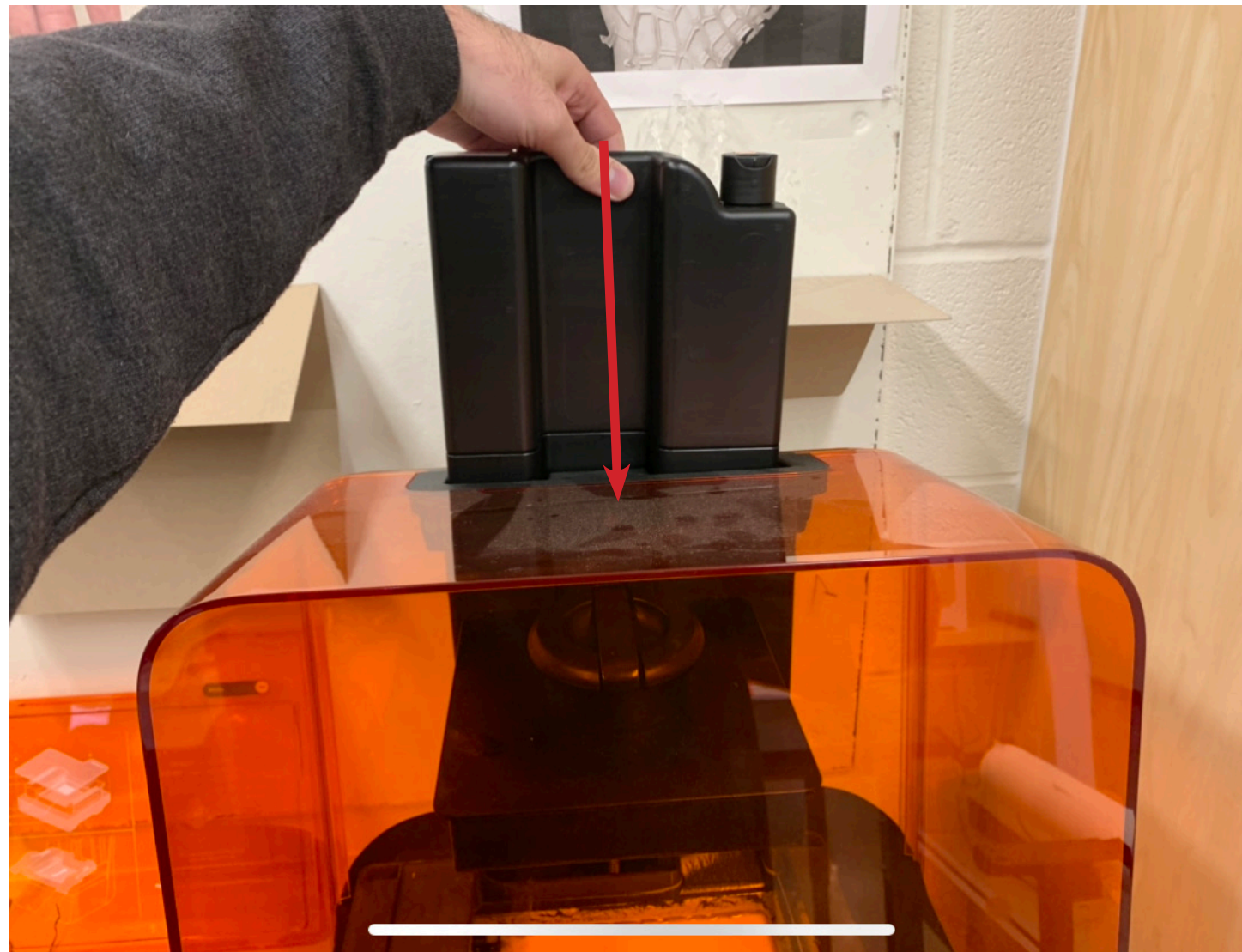
**STEP 2:** OPEN THE LID OF THE 3D PRINTER. THEN REMOVE THE ORANGE TOP OF THE TANK CASE. LIFT THE TANK OUT OF THE CASE AND PLACE IT IN THE BED OF THE 3D PRINTER AS SHOWN

SLIDE THE TANK TOWARDS THE BACK UNTIL IT "CLICKS". THE PRINTER WILL MAKE A NOISE AND CONFIRM THAT THE TANK IS PLUGGED IN.



# PRINTER PRIMING

**STEP 3:** TAKE THE MATCHING CARTRIDGE AND INSERT INTO THE BACK OF THE 3D PRINTER. THE CARTRIDGE SHOULD SLIDE IN EASILY WITHOUT DIFFICULTY AND REST IN PLACE



# PRINTER PRIMING

**STEP 4:** CHECK THE PRINTER BED FOR DEBRIS/  
EXISTING PRINT RESIDUE OR PIECES. CLEAR  
AS NEEDED WITH ALCOHOL SPRAY AND A  
PAPER TOWEL OR SCRAPER AS NEEDED

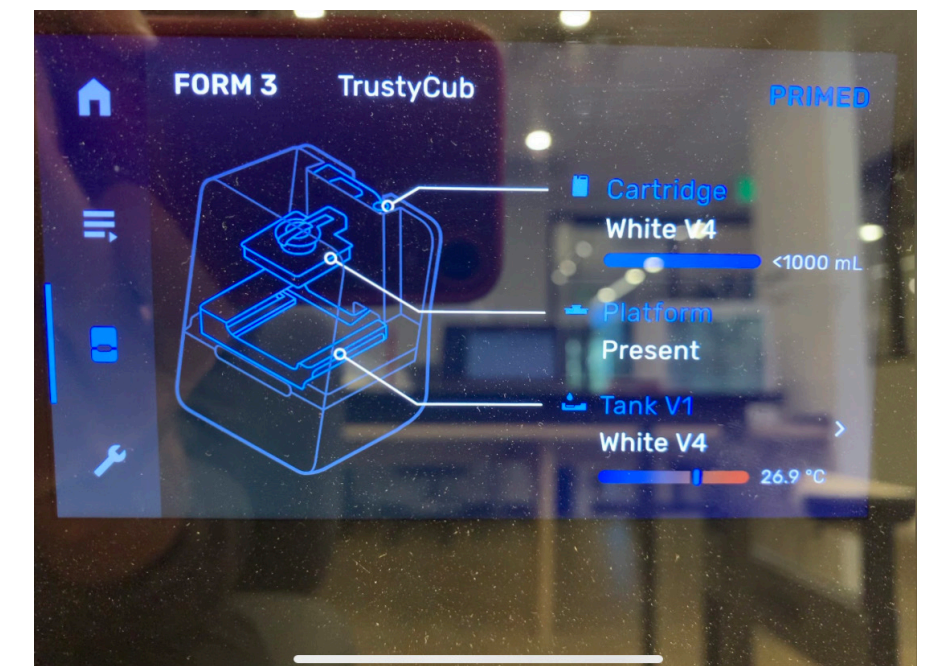
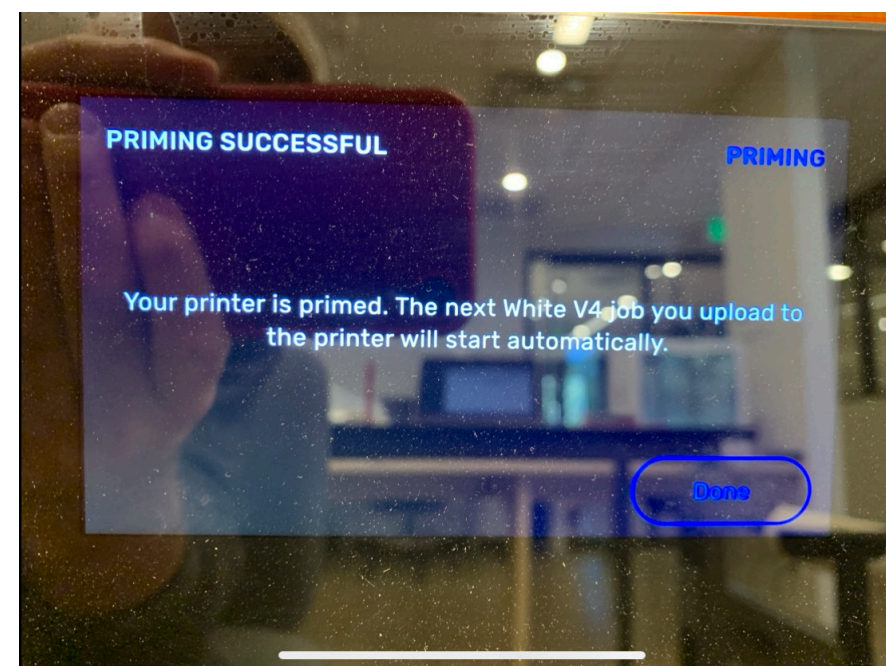
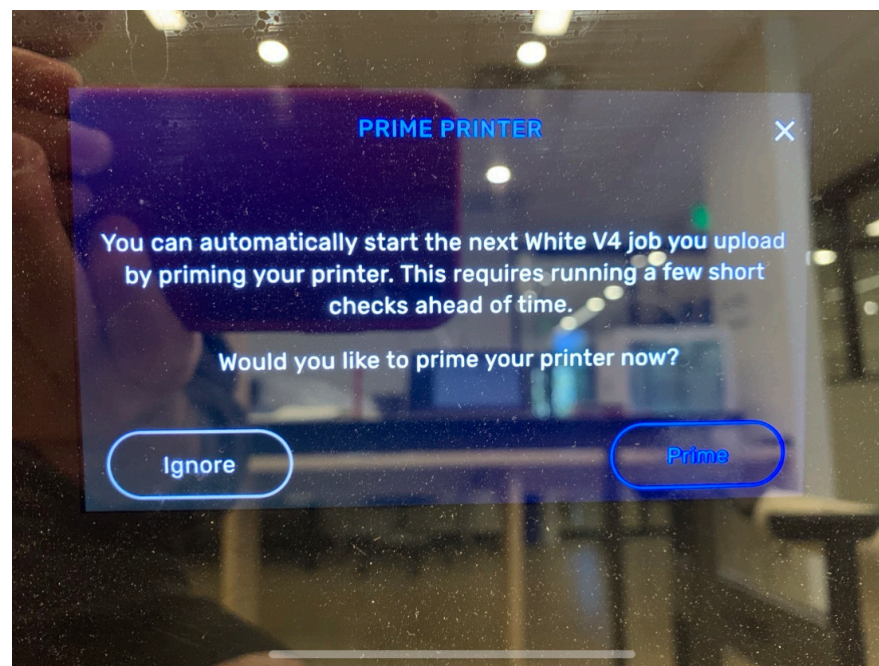
LIFT UP ON PRINTER BED HANDLE TO  
UNLOCK AND SLIDE OUT TOWARDS YOU.  
HANDLE BED WITH CIRCULAR GRIP WHILST  
CLEANING.



# PRINTER PRIMING

**STEP 5:** YOU ARE NOW READY TO PRIME THE PRINTER. CLOSE THE LID AND FOLLOW THE PROMPTS ON THE SCREEN, DOUBLE CHECKING EACH STEP YOU TOOK. MAKE SURE THE PRINTER BED IS LOCKED AND THE CARTRIDGE VENT IS OPEN.

THE PRINTER IS NOW READY FOR PRINTING AND WILL RETURN TO THE MAIN MENU AWAITING INSTRUCTIONS.



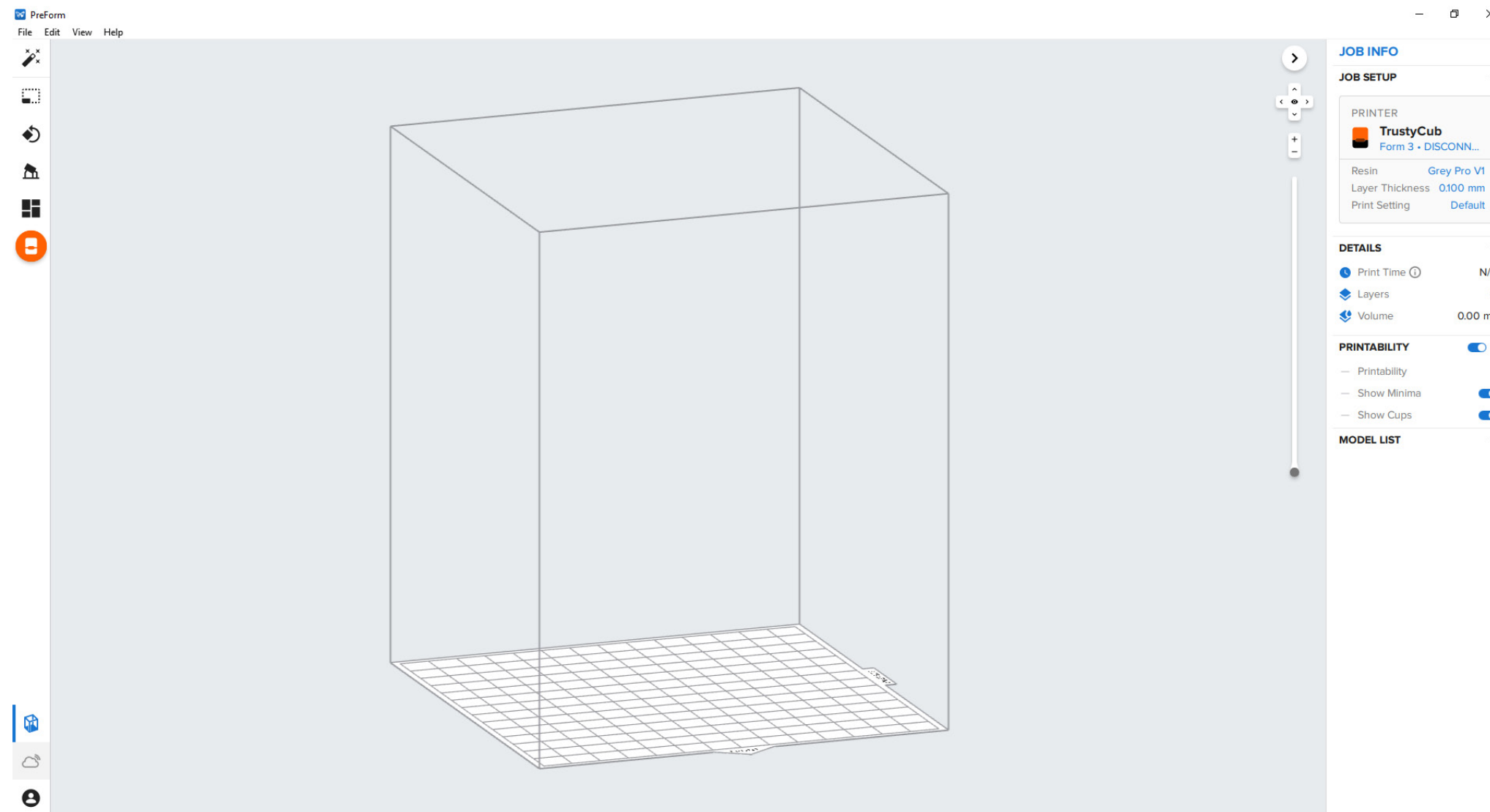
# MODEL CONFIGURATION

**STEP 1:** USING ONE OF THE FAB LAB COMPUTERS, OPEN THE PREFORM SOFTWARE THAT INTERACTS WITH THE 3D PRINTERS. THIS IS WHERE YOUR MODEL WILL BE SET UP FOR PRINTING



**ONCE IN THE SOFTWARE, NAVIGATE TO: FILE, OPEN AND SELECT YOUR PROJECT VIA THUMB DRIVE OR DOWNLOAD FROM EMAIL**

**\*NOTE: PROJECTS MUST BE SAVED AS AN STL FILE FORMAT FOR THE 3D PRINTING SOFTWARE**

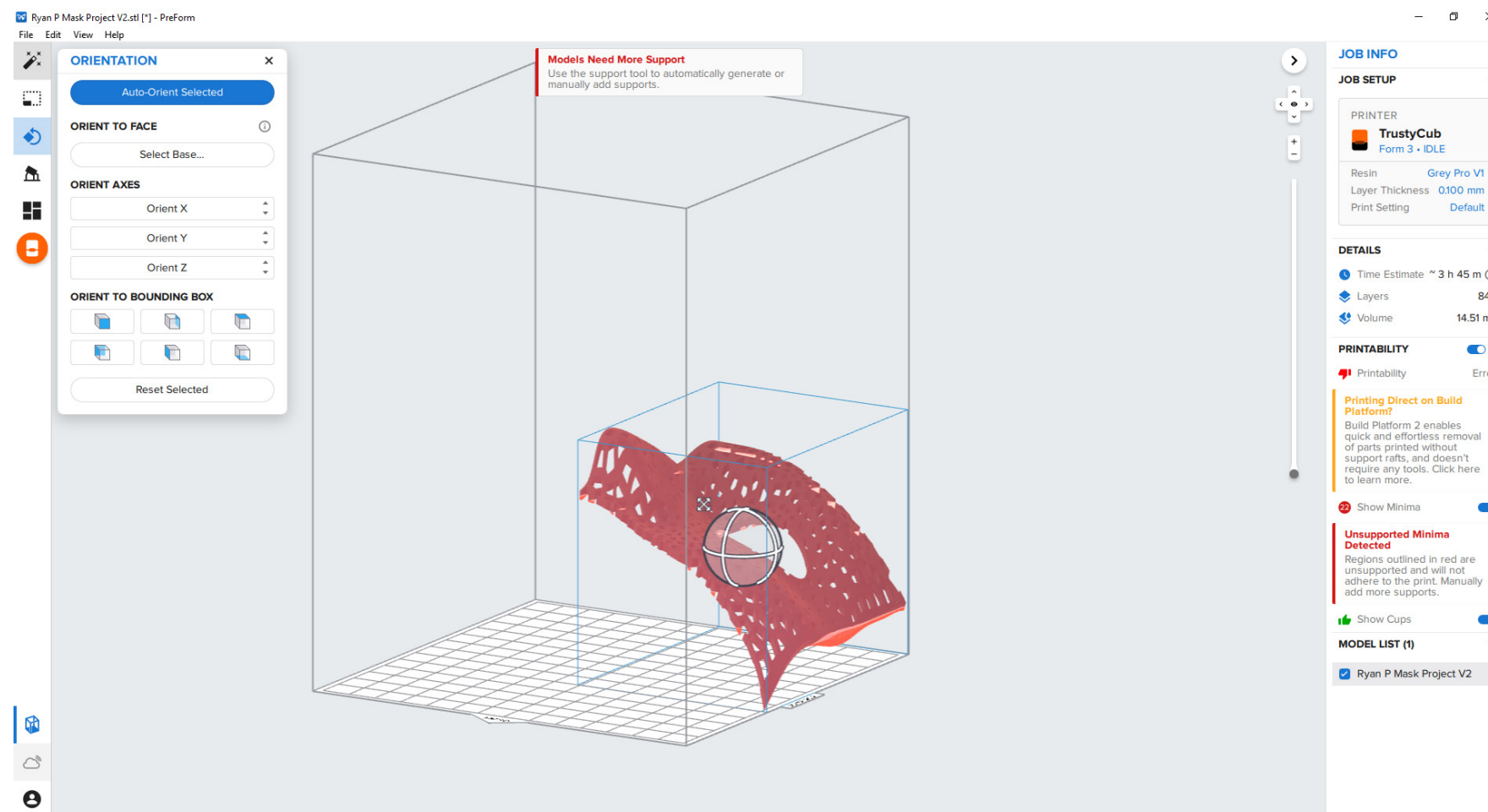


# MODEL CONFIGURATION

**STEP 2:** 3D MODELS REQUIRE CONFIGURATION UNIQUE TO EACH NEW OBJECT PRINTED TO HAVE SUCCESS PRINTING. THE TWO MAIN FACTORS CONTRIBUTING TO PRINTABILITY ARE ORIENTATION AND SUPPORTS

**FIRST, ORIENT YOUR MODEL TO FIT THE PRINT BED SPACE AND TO MAXIMIZE EFFICIENCY. IT TAKES TIME TO LEARN WHAT THIS EXACTLY MEANS SO DON'T BE AFRAID TO ASK A FAB LAB ASSISTANT (OR DR. LIMA) FOR HELP!**

**\*NOTE: PROJECTS MUST FIT INSIDE THE 6"X6"X7" MAXIMUM PRINT VOLUME. ADJUST SCALE/SIZES VIA YOUR 3D MODELING SOFTWARE NATIVELY, OR TRY USING THE PREFORM SCALING FEATURE**

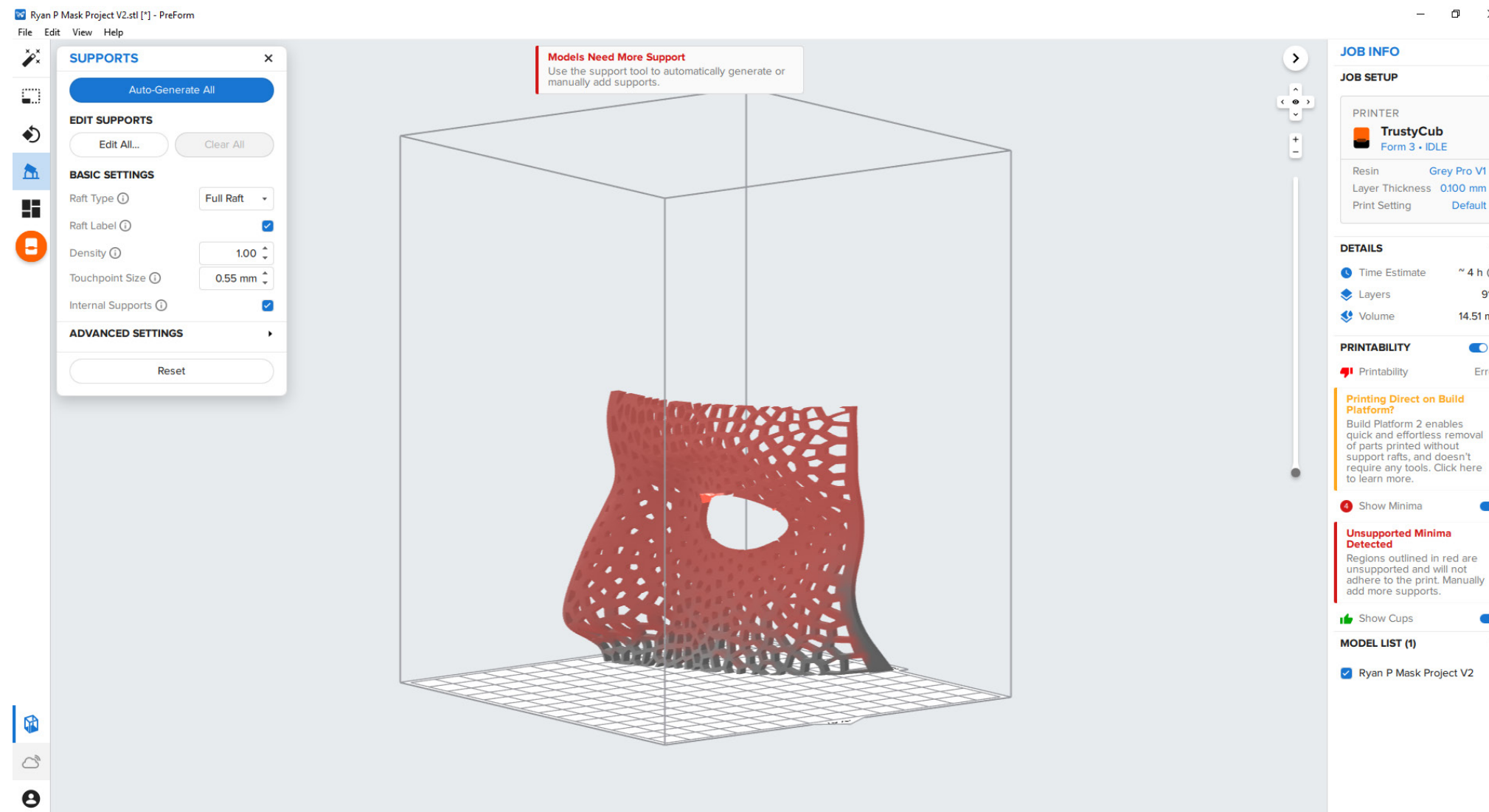




# MODEL CONFIGURATION

**STEP 3:** AFTER STRATEGICALLY ORIENTING YOUR MODEL TO FIT THE PRINT BED EXTENTS, IT IS TIME TO GENERATE SUPPORTS TO HELP THE MODEL RETAIN ITS SHAPE WHILE PRINTING.

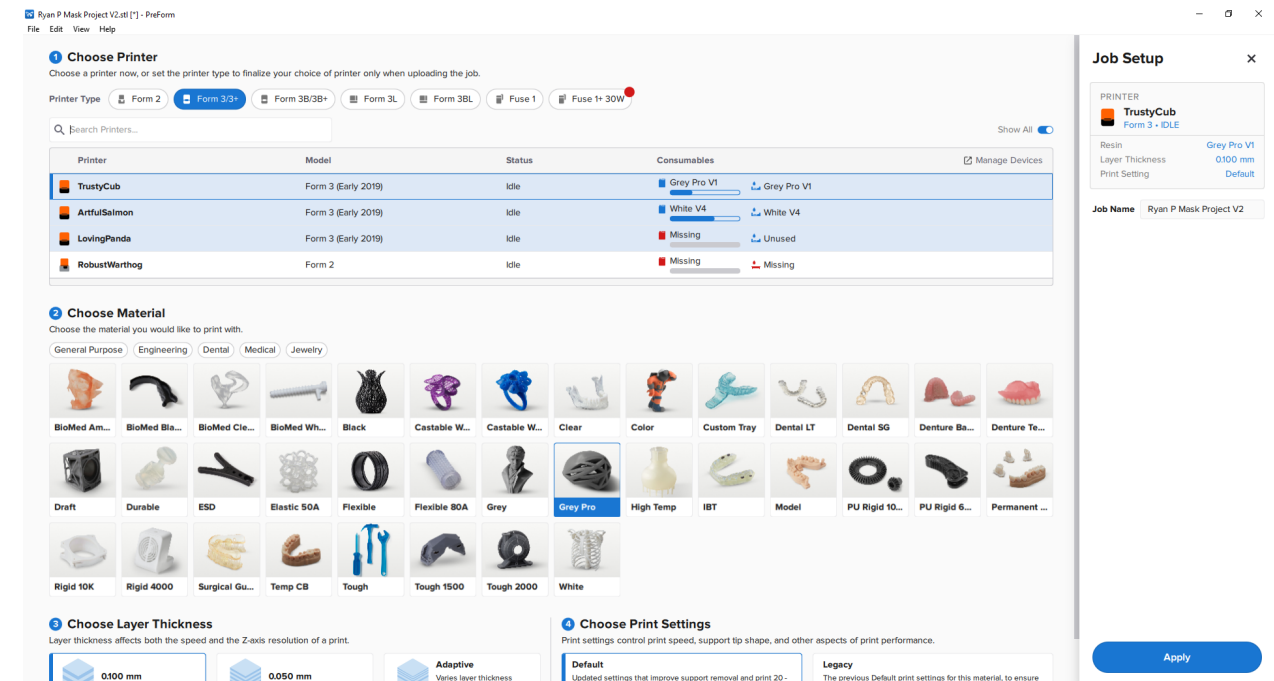
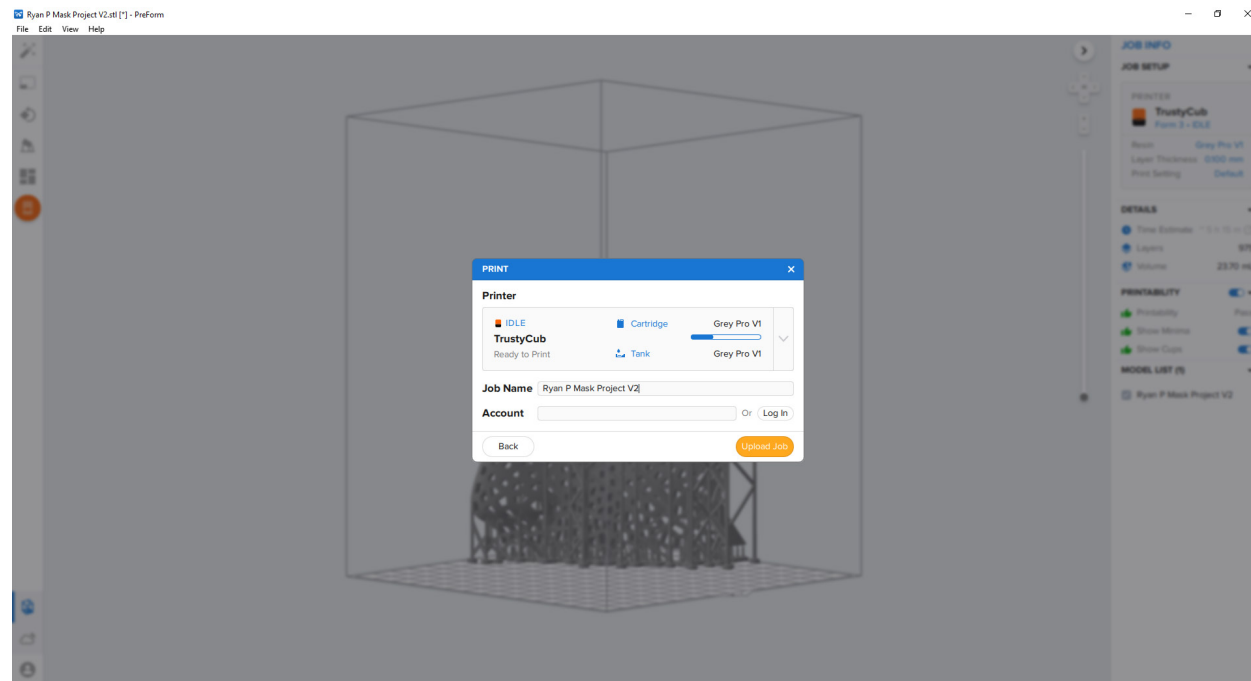
SUPPORTS HAVE A FEW DIFFERENT FACTORS THEY GENERATE BY. CHANGING THE DENSITY, RAFT TYPE, AND TOUCHPOINT SIZE. THESE CAN ALSO VARY IN VALUE BASED ON WHAT IS BEING PRINTED. FINDING A BALANCE BETWEEN ALL THE VALUES AND THEIR EFFECT ON THE MODEL PRINT IS IMPERATIVE FOR EFFICIENT PRINTING. ASK FOR HELP IF NEEDED!



# MODEL CONFIGURATION

**STEP 4:** YOU ARE NOW READY TO PRINT YOUR MODEL. NAVIGATE TO THE ORANGE BUTTON ON THE LEFT HAND SIDE OF YOUR SCREEN AND CONFIRM THE SETTINGS THAT POP UP IN THE WINDOW.

**CHECK ON PRINTER FOR STARTUP, THEN YOU ARE SAFE TO CLOSE THE PROJECT ON PREFORM.**



# POST PRINT PROCESS

**STEP 1:** UPON PRINT COMPLETION, YOUR MODEL SHOULD BE ATTACHED TO THE PRINT BED UPSIDE DOWN IN THE PRINTER. LIFT THE PRINTER COVER. LIFT THE LATCH ON THE PRINT BED HANDLE AND SLIDE OUT TOWARDS YOU. HANDLE THE PRINT BED BY THE CIRCULAR HANDLE ON THE NON-BED SIDE.

USING THE SCRAPER, CLIPPERS, AND ALCOHOL SOLUTION, REMOVE YOUR MODEL FROM THE PRINT BED AND ITS PRINTED SUPPORTS.

**\*NOTE: BE SURE TO USE THE DISPOSABLE GLOVES IN THE CABINET TO HANDLE MODEL AND EQUIPMENT.**

# POST PRINT PROCESS

**STEP 2:** PLACE YOUR MODEL IN THE ALCOHOL DUNK TANK ACCORDING TO RESIN COLOR. AFTER 20ISH MINUTES, REMOVE AND CHECK FOR TACKINESS. IF NOT TACKY, LEAVE TO AIR DRY OR MAKE USE OF THE FORMLABS OVEN TO FINISH SETTING THE RESIN AND HARDEN. TIME WILL VARY BY MODEL BUT 15-20 MINUTES SHOULD SUFFICE.

# POST PRINT PROCESS

**STEP 3:** REMOVE FROM OVEN AND YOUR MODEL IS COMPLETE!  
REMEMBER TO CLEAN UP AFTER YOURSELF AND  
RETURN ALL MATERIALS TO THEIR PROPER PLACE.