GUIDE FOR

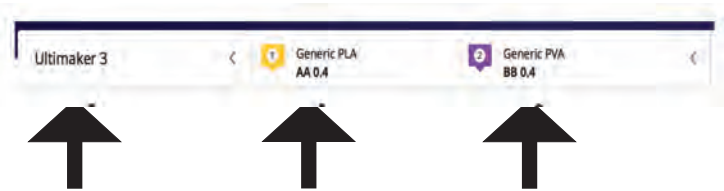
3D PRINTING

SUCCESS

STEP 1: EXPORT YOUR FILE AS AN STL

STEP 2: OPEN CURA

STEP 3: CHECK PRINTER AND MATERIAL SETTINGS



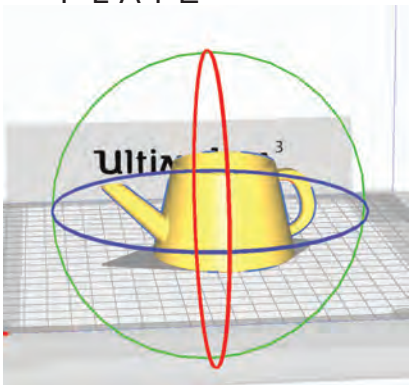
PRINTER

BUILD MATERIAL

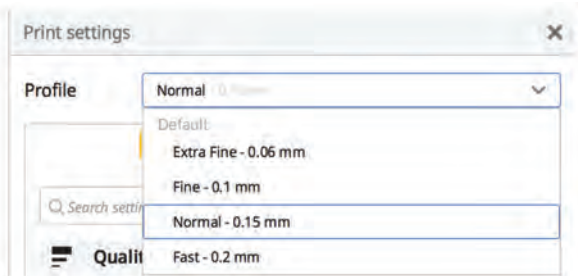
SUPPORT MATERIAL

STEP 4: IMPORT YOUR STL FILE(S). YOU CAN UPLOAD SEVERAL OBJECTS TO THE SAME BUILD PLATE AS LONG AS THEY ALL FIT WITHIN THE BUILD VOLUME.

STEP 5: ROTATE YOUR OBJECT SO IT IS FLAT ON THE BUILD PLATE

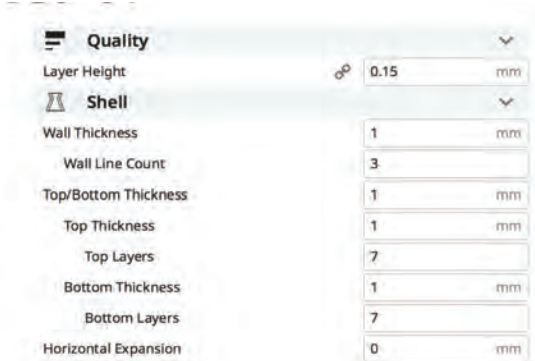


STEP 6: SET PRINTING PROFILE



FOR MOST PRINTS, A NORMAL PROFILE WILL BE GREAT.IF YOU HAVE ALOT OF TEXTURE REFER TO THE EXAMPLES TO SEE WHAT CAN BE ACHIVED

STEP 7: QUALITY AND SHELL

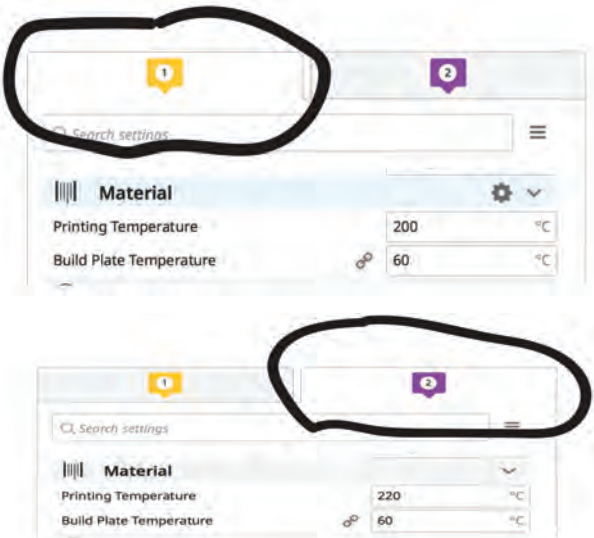


ONCE STEP 6 IS COMPLETE, YOUR QUALITY AND SHELL WILL BE PREDETERMINED FOR YOU. NO NEED TO ADJUST THESE

STEP 8: INFILL

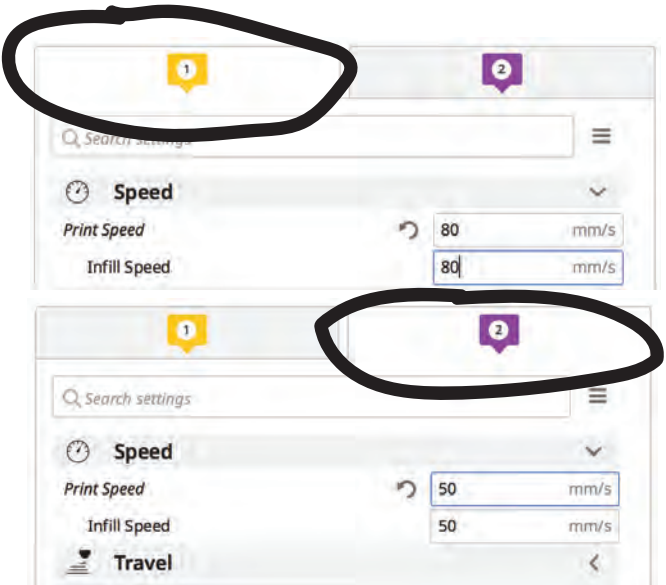
IF THE OBJECT THAT YOU ARE PRINTING IS REPRESENTATIONAL THEN 20% OR LOWER WILL DO. IF YOU ARE PRINTING A STRUCTURAL COMPONENT TO SOMETHING YOU MAY WANT TO INCRESE THIS NUMBER.

STEP 9: MATERIAL



THE FILAMENT THAT WE PRINT WITH, USES THE DEFAULT SETTINGS FOR TEMPERATURE. THE BUILDPLATE TEMPERATURE WILL ALWAYS BE 60.IT IS IMPORTANT TO NOTE THAT AS YOU TOGGLE BETWEEN THE TABS FOR EXTRUDER NUMBER 1 AND EXTRUDER NUMBER 2, THE SETTINGS SHIFT TO ACOMADATE FOR THE THE DIFFERENCES IN CHEMICAL PROPERTIES IN EACH MATERIAL.

STEP 10: SPEED

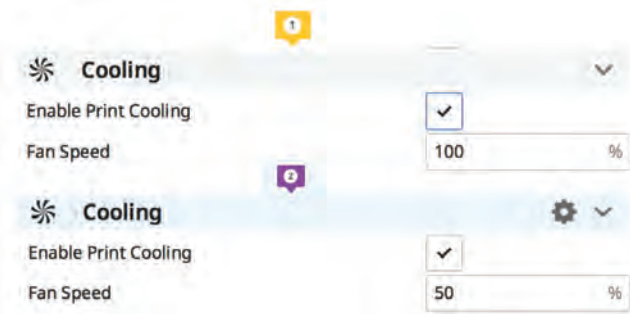


JUST LIKE IN STEP 9, THE TWO EXTRUDERS WILL REQUIRE DIFFERNT SETTINGS. YOU WILL ALWAYS WANT TO BE RUNNING YOUR SUPPORT SPEED SLOWER THAN YOUR BUILD TO ENSURE THAT YOU DO NOT JEPORDIZE THE STRUCTURAL INTEGRITY OF YOUR OBJECT. A RECOMENDED RANGE FOR EXTRUDER 1 IS 50-80 MM/S
FOR EXTRUDER 2 30-50 MM/S

STEP 11: TRAVEL

YOU WANT TO MAKE SURE THAT YOU HAVE BOTH CHECKED SO THAT THE TRANSTIONS FROM ONE NOZEL TO THE NEXT GO SMOOTHLY.

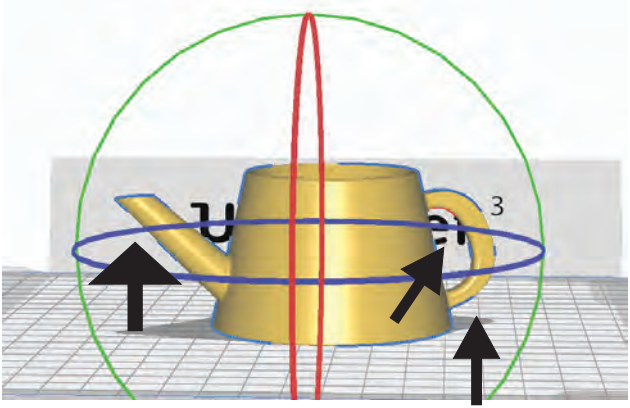
STEP 12: COOLING



FAN SPEEDS FOR COOLING WILL BE SLOWER FOR SUPPORT MATERIAL, DUE TO THE TIME IT TAKES FOR THE MATERIAL TO HARDEN DUE TO ITS CHEMICAL PROPERTIES THAT DIFFER FROM THAT OF PLA

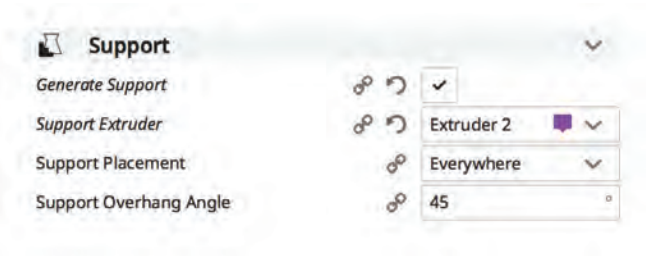
STEP 13: SUPPORT

WHEN EVALUATING WHETHER OR NOT YOUR PRINT WILL NEED TO HAVE SUPPORT MATERIAL, YOU SHOULD IDENTIFY WHERE YOUR OBJECT HAS OVERHANGS. FOR EXAMPLE,IN THE PICTURED OBJECT, OVERHANGS ARE IDENTIFIED BY THE RED AREAS. THE SPACE BENEATH THE BOTTOM OF THE CAR AND THE BUILD PLATE NEED SUPPORT MATERIAL, OTHERWISE THE BODY OF THE CAR WILL BEGIN TO PRINT INTO MID AIR. SUPPORT MATERIAL IS WATER SOLUBLE AND CAN BE REMOVED AFTER THE PRINTING PROCESS IS COMPLETE.



STEP 13:SUPPORT CONTINUED

ONCE YOU HAVE SELECTED SUPPORT MATERIAL, YOU WANT TO MAKE SURE THAT THE SUPPORT MATERIAL WILL COME OUT OF EXTRUDER NUMBER 2 AND THAT THE OVERHANG ANGLE IS SET TO 45 DEGREES.



IN SOME CASES THE OVERHANG ANGLE MAY NEED TO BE ADJUSTED. ONCE THE OBJECT HAS BEEN SLICED, IF YOU CLICK ON THE PREVIEW TAB AND IT APEARS THAT YOUR FORM IS NOT COVERED BY THE 45 DEGREE OVERHANG, ADITIONAL STEPS COULD BE TAKEN, PLEASE SEE STAFF IF THIS APEARS TO BE THE CASE.

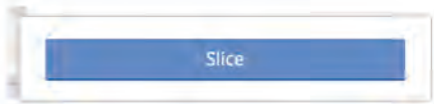
STEP 14: BUILD PLATE ADHESION

BUILD PLATE ADHESION MUST COME OUT OF THE SECOND EXTRUDER SO THAT WHEN YOUR PRINT LAYS DOWN ITS FOUNDATION LAYER, IT DOES NOT ADHERE TO ITSELF PERMENENTLY. IF YOU HAVE YOUR BUILD PLATE ADHESION COME OUT OF YOUR FIRST EXTRUDER, YOU WILL NEED TO USE AN EXACTO KNIFE TO REMOVE IT AFTER THE PRINT HAS BEEN COMPLETED.

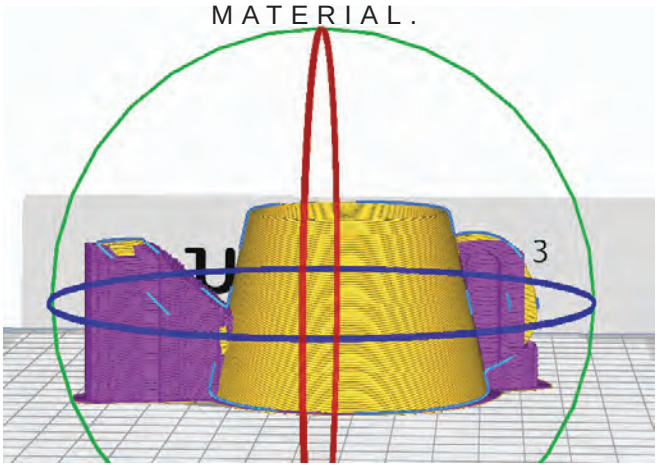
STEP 15: DUAL EXTRUSION

ONLY WITH OBJECTS THAT ARE MOSTLY NARROW AND VERTICLE IN NATURE WILL REQUIRE A PRIME TOWER AND EVEN THOSE CASES MAY HAVE A MORE EFFECTIVE ALTERNATICE FOR PRINTING. FOR THE BULK OF PRINTS, YOU CAN LEAVE ENABLE PRIME TOWER UNCHECKED.

STEP 16: PREVIEW



ONCE YOU HAVE ENTERED ALL OF YOUR SETTINGS YOU CAN CLICK ON SLICE IN THE BOTTOM RIGHT CORNER OF THE CURA BROWSER. ONCE YOU HAVE SLICE YOU CAN NOW SEE A PREVIEW OF THE WAY THAT YOUR OBJECT WILL PRINT. ANYTHING THAT IS IN PURPLE WILL BE YOUR SUPPORT MATERIAL AND ANYTHING IN YELLOW IS YOUR BUILD MATERIAL.

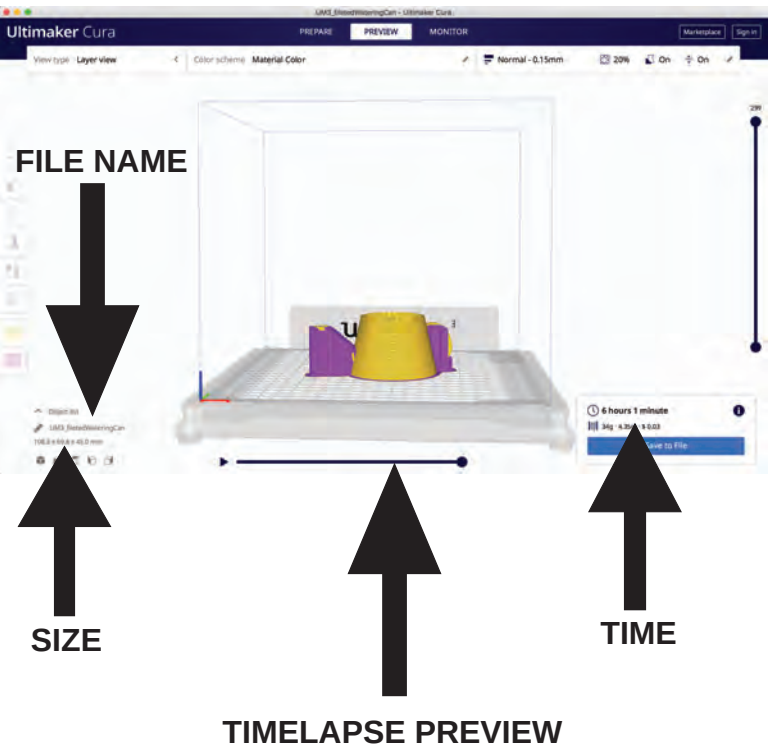


STEP 19: PICK UP

WHEN PRINTS HAVE BEEN COMPLETED, YOU WILL RECIEVE AN EMAIL THAT THEY ARE READY FOR PICKUP. ALL PRINTS WILL BE PLACED ON A TABLE ON THE SECOND FLOOR OF THE MODEL SHOP.

IF YOUR PRINTS HAVE SUPPORT MATERIAL ATTATCHED YOU WILL NEED TO SUBMERGE THEM IN WATER IN ORDER TO DISOLVE YOUR PVA.

STEP 16: PREVIEW EXPANDED



STEP 17: EXPORT

AFTER YOU HAVE SLICED YOUR OBJECT, YOU NEED TO EXPORT YOUR FILE AS A .GCODE

STEP 18: SUBMIT TO PRINT

EMAIL YOUR .GCODE FILE TO:
coamodelshop@iit.edu

YOUR EMAIL SHOULD INCLUDE:

-SUBJECT HEADER = PRINT
- HAWK ID A #
- FILAMENT COLOR = BLACK OR WHITE
- HOW MANY HOURS AND MINUTE YOUR PRINT WILL TAKE
- NAME OF FILE
- 1 PRINT PER EMAIL 2 PRINTS = 2 EMAILS

**PRINTS COST $1 PER HOUR YOU WILL NEED MONEY LOADED ON YOUR HAWK CARD PRIOR TO SENDING YOUR EMAIL. WHEN YOU SUBMIT YOUR FILE YOU WILL BE CHARGED WITHOUT HAVING TO MAKE A PAYMENT IN PERSON.