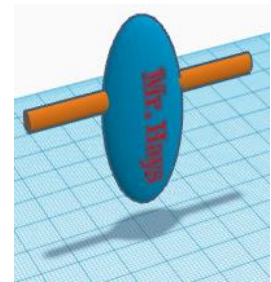3D Printing Dos and Don'ts (Make 1 and Make 2)
Due Tuesday 9/26/23 (4th and 6th), Wednesday 9/27/23 (3rd)

It is very easy to create objects in Tinkercad which our printers cannot print. Things to avoid if you are wanting to print are thin branches or arms, huge overhangs, things that are not touching the build-plate, and small or thin text.


Here to the right is a very simple creation that shows all three problems I just talked about.

The blue part is not touching the work plane. The horizontal bar is all overhang. 3D printers are OK with a little overhang (think the letter Y, not the letter T), but not a straight bar hanging out of something. Also, long thin things sticking out or up often do not print well. Finally, the text simply will not print well, it almost never does, unless you are printing very large things and on a face-up surface.

Here is a photo that shows the difference in how things often turn out when you have overhangs. A Y shape works best, an H is OK, provided the open space isn't too large, and a T shape tends to not be as great.

Another problem I commonly see is people accidentally putting part of their model below the workplane. Here's pictures of that:
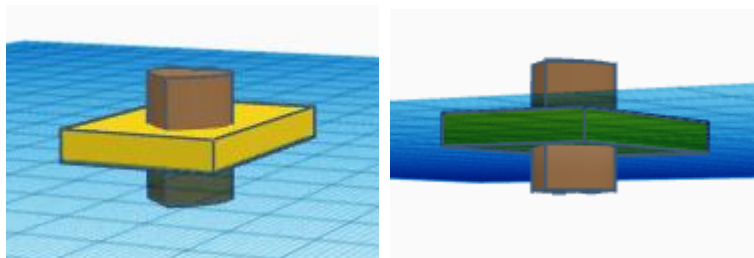
This will cause all sorts of problems. Make sure you have your work flat on the workplane before exporting to STL.

If you'd like to learn more tips about successful printing and design, here are two links. The first has some great advice, and the second has a video where a designer walks us through her points with examples. You don't have to read or watch these, I'm just providing them for you if you are interested.

1. https://www.onshape.com/cad-blog/top-5-tips-for-designing-for-3d-printing

2. https://makezine.com/2013/12/11/top-ten-tips-designing-models-for-3d-printing/

Today's assignment is on the next page.

Ttoday's assignment:

In a single Tinkercad project, create something that would NOT be easily printable that uses your initials, one sphere, and at least four other shapes (your choice). In other words, make something that breaks all the rules I mention in the first few paragraphs above. In front of this, on the workplane, write the word "NOT". Then, select everything, duplicate it, and move the duplicate over to the other side. Re-arrange everything (don't change the size or shape of any of the pieces, but DO rotate, move/raise/lower everything so that you are left with something that WILL 3D print well. If you're not clear on what will or won't, review the paragraphs at the start of this document. Use the TEXT tool to write your name in front of the part that WILL print well.

In the end, you will have two creations in your Tinkercad document, one with the word "NOT" int front of it that would not 3D print well, and the other to the side that is the same parts, re-arranged so that it WILL 3D print well, with your name in front of that part.

If you need help, ask me for help.

Today we turn your work in differently.

When done, turn in a share link, NOT an STL file. To get a share link, click the share icon (see image to the right) then click "Generate new link" and then "Copy new link". Turn that link in on the Google Classroom. This is required for this assignment.

What is the difference between turning in an STL and turning in a share link? STL files (which we get by using the Export button) can be used for 3D printing. When I review them they are all one color and I have to view them in another program.

Share links let me view your projects inside Tinkercad with all the colors still showing. I can easily and quickly rotate/zoom in, zoom out, etc. and for this project, I need that flexibility to see if your project satisfies the requirements.