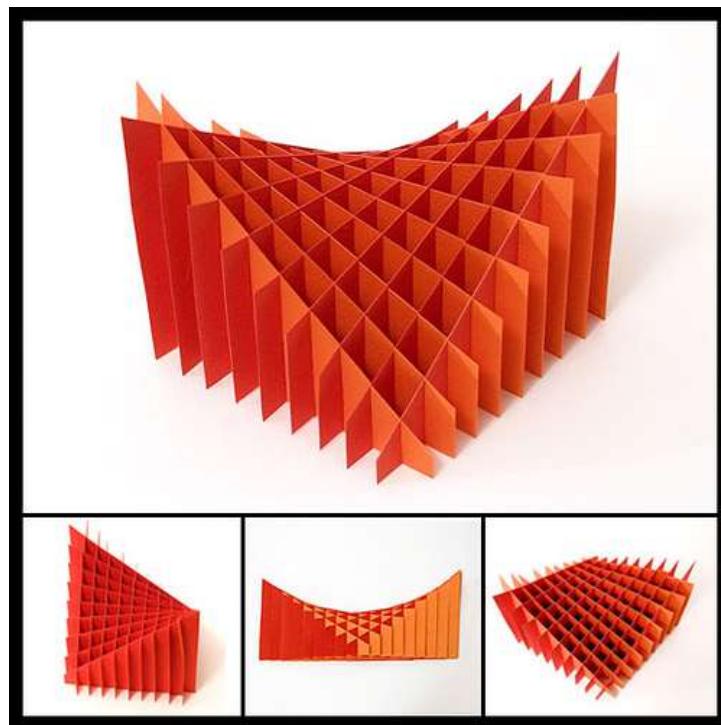


Sliceform/Stackform Task

Paper Engineering

Each PAIR of students must complete the first three assignment but students must write the paper in assignment 4 individually.

1. Create two Sliceforms. The slices must be cut on cardstock (110 lb works best!) You should create one sliceform from each of the following:
 - a. Choose one of the studio files and cut the pieces out on the electronic paper cutter to construct your sliceform.
<http://ischoolpolymath.com/2014/09/19/sliceform-template-files/>
 - b. Get a partial studio file from Ms. P. Use the studio software to design the other pieces needed to complete the sliceform



If you have extra time, you should create an additional sliceform!

2. Create a simple Stackform. Follow these steps carefully:
 - a. Find a shape you like on thingaverse and download as a STL file OR Find a shape on tinkercad OR create your own shape on tinkercad and download as an STL file
 - b. Open 123D Make and Import your file.
 - c. Change the height of your object to 3-5 inches (the taller it is the more stacks you will need and the more complicated the project)
 - d. Go to Select a Technique and choose *stacked slices*
 - e. Go to Manufacturing Settings and click the settings button and look at the *thickness* setting at the bottom. Change the thickness to 0.125 since we are using cardboard.
 - f. Go to Get Plans at the bottom of the menu. Change the file type to PDF and export the file.
 - g. Save your file and print two copies of it (or one if you are using a single sided printer)
 - h. Tape your pages to a sheet of cardstock and use and Xacto knife and scissors to cut out your stacks. Be sure to use a pencil and label each cardboard stack with the correct number!
 - i. Assemble your stacks in order – you can use the assembly instruction in 123D make and glue them together with Elmer's glue.



3. AREA and VOLUME

Choose either your sliceform or your stackform project. Determine the approximate total area in square inches of all of the 2d pieces of your object. Then Determine the approximate total volume in cubic inches of your object. You should show all work on a piece of paper and be able to justify your answers mathematically.

Determine the ratio of 2d to 3d for your objects area and volume.

4. Write a paper (less than 1 page) that completes the following:

- a. Describe sliceforms and stackforms
- b. What are the similarities of sliceforms and stackforms?
- c. What are the differences?
- d. Describe one way that sliceforms or stackforms can be used.
- e. Which of the form types do you like better? Which was easier to create? Which was easier?

each student should write their own paper!