DKPL Advanced TinkerCAD Design Class

Class Goals:

Import a .stl file into TinkerCAD

Convert a graphics file into a .svg

Import a .svg file into TinkerCAD

Show an example of a Community Shape Generator.

Designing a personalized keychain in TinkerCad:

Creating an SVG:

1) Open Microsoft Publisher.
2) Choose "Blank 8.5 x 11"
3) From the menu bar, select the "INSERT" tab, and then click on "WORD ART". Pick the first "Letter A" option.
4) Type your name—hitting 'Enter' between first and last—in the dialog box that comes up, then click "OK"
   Next we need to make the letters solid, go to the toolbar, select "Shape Fill" and click on the first black square in the top left corner. Then go to "Shape Outline" and select the first black square again.
5) Right click on your name and select "Save as Picture"
6) When the "Save As" dialog box comes up, choose "Desktop" from the left pane of the dialog box, and change the file name from "Picture1" to "NamePNG".
7) Close out of Publisher without saving the document.
8) Go to http://image.online-convert.com/convert-to-svg
9) In the middle of the page, (under the advertisement) there will be a box titled "Upload your image you want to convert to SVG". Click browse.
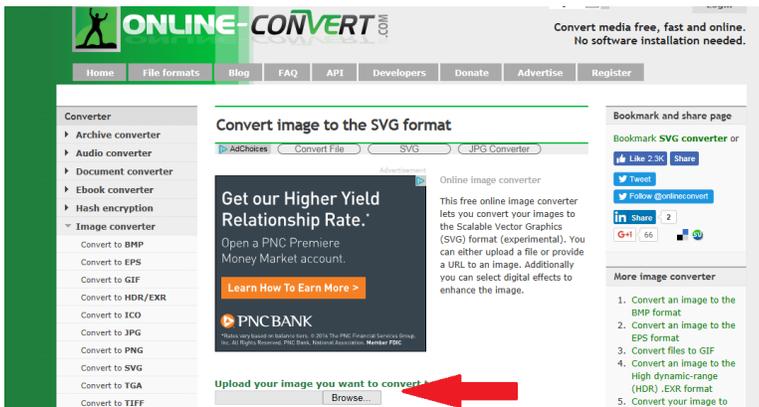
10) In the dialog box that comes up, scroll through till you find the file "namePNG" click on it, and then click "OPEN"
11) The dialog box will go away, and you'll be taken back to the webpage, scroll down a bit till you find the "Convert File" box, then click it.

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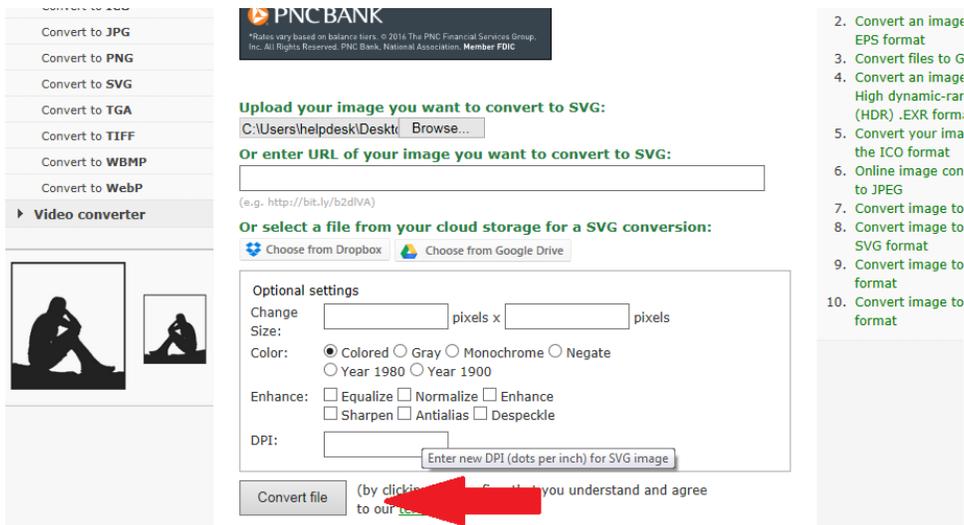
12) It may take up to a minute for the website to convert your file, and then you will see the site load to a new page.

13) Just above the Taskbar on the bottom of the screen, a Yellow "Save As" box will appear, click the downwards facing triangle next to "Save"
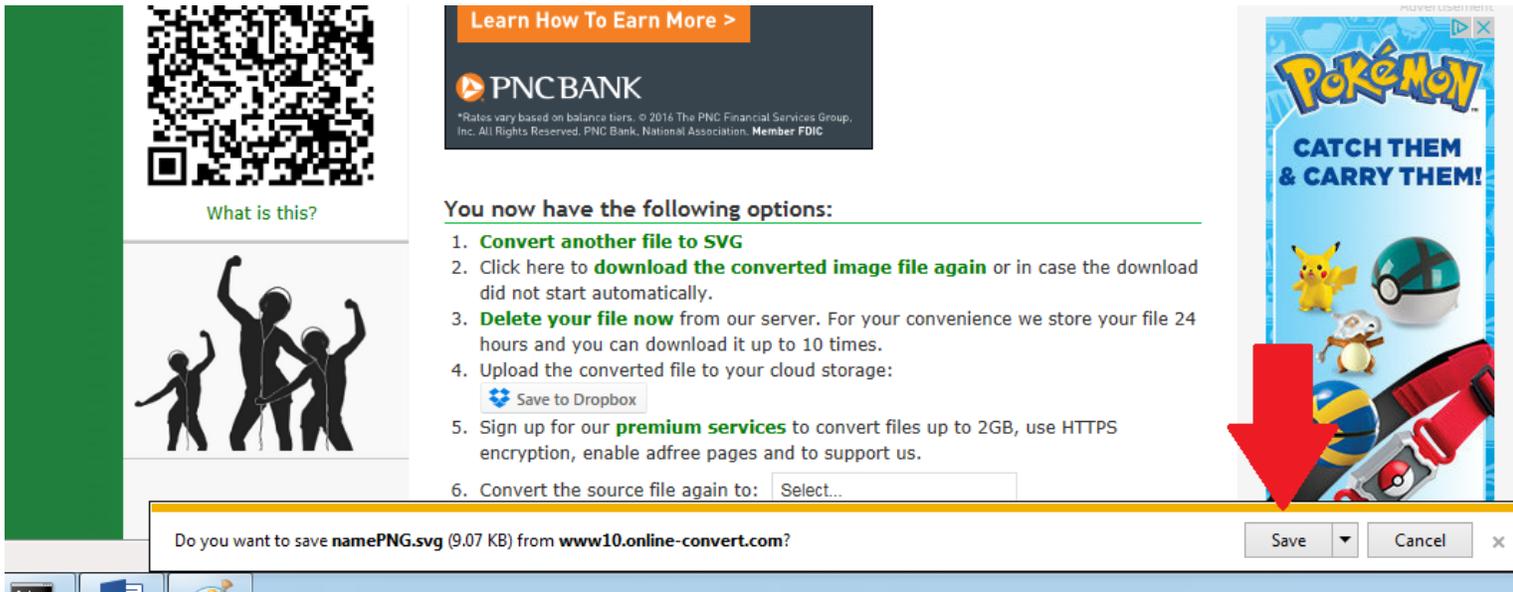
14) Choose "Save As" and the "Save As" Dialog box will come up, change the file name to "nameSVG" and click "Save".

15) Minimize Internet Explorer and look on your desktop for the "nameSVG" file, it will be an Internet Explorer icon.

16) Check your name, it may not be perfect (for example "a" and "o" may be filled in), it should still work for our uses here.

Downloading an STL file from Thingiverse:

1) (Re-) Open Internet Explorer and type in www.thingiverse.com in the address bar.

2) In the "Enter the Search Term" box, type in: dkpl

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3) The "Advanced DKPL TinkerCad" shape should show up. Click on the picture of the hexagon.
4) Click on the blue box that says: "Download all files"
5) Select "Save As" from the Dialog box that comes up, and then click "Save" again.
6) The file saves in a "Zip" folder, and before we can do anything with it, we'll need to unzip it.
7) Minimize Internet Explorer, look for a folder on the desktop called "DKPL Advanced…" and open it
8) Inside that folder, you'll see another folder called "Files". Double click that to open.
9) Single click on the "DKPL Advanced…".stl file and drag it to desktop.

Building you keychain

1) In Internet Explorer, go to Tinkercad.com and log in.
2) Select "Create Legacy Design" (TinkerCAD has recently made their 'BETA' designer the default, and it still has some bugs to be worked out)
3) On the right toolbar, select "import" and then click on the "Browse" button.
4) Look for the "DKPL Advanced…" .stl file (NOT the folder) and click on it, and click "Open".
5) Then on the TinkerCad page, click on the "Import" button. This may take some time. When it's done, you'll have our hexagon template on the workplane.
6) From the "Helpers" Menu, pull out the Ruler and put it on the bottom left corner of the hexagon.
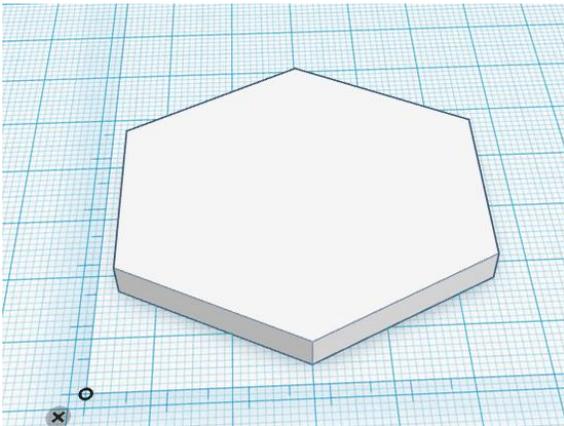
7) Now using the instructions from steps 3 and 4, you'll import the "nameSVG" file.
8) The Name import is likely to be huge. So using the white manipulator box and holding the shift key, resize your name to fit the hex.
9) Then, using the 'Z' manipulator, increase the height of the letters so they show over the top of the hex, and move your name to the hex.
10) With the name highlighted, look at the "Object Inspector" and make your name a 'hole'
11) In the "Z Offset" measurement box (will likely read 0.00") type in 2.5. This will leave 2.5mm of solid material under your name.
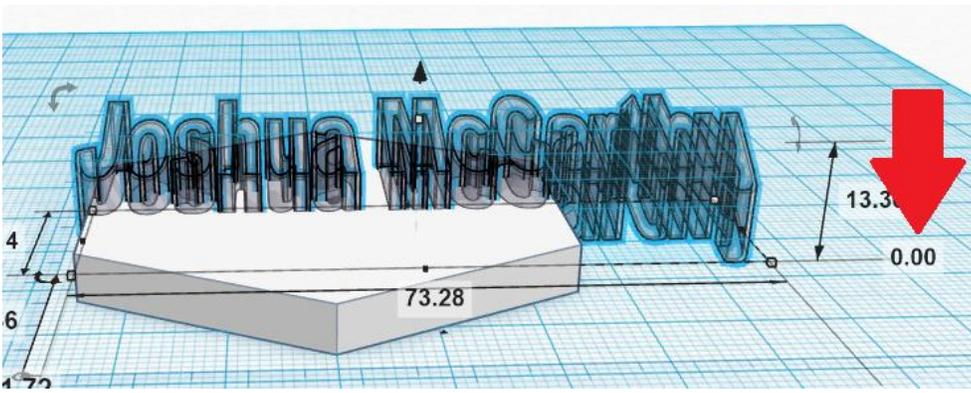
12) Towards the top of the hexagon, insert a cylindrical hole around 4.3mm in diameter. Insure that the hole goes from top to bottom.

13) Your design is now done, but if you would like to add something else to it, feel free, just check to make sure that it'll print ok.

14) Rename your design to: "Lastname_Firstname_keychain" and save it to the supplied flashdrive. Hand it in to Josh. Fill out the Print sheet and select the filament color you'd like. We'll notify you in a few days when it's done.

Shape Generators:

Shape generators allow you to use more than the basic geometric shapes. There are two categories, TinkerCAD and Community. TinkerCAD only has a couple of options, but the "Community" category has a few dozen.
 Depending on the shape generator, you are able to change wall thickness, number of sides, radius and other, shape dependent constraints. While we won't be using them on this project, we'll pull some up on the screen so you can get a feel for them.