

## Foundations TinkerCad Tutorial #4a

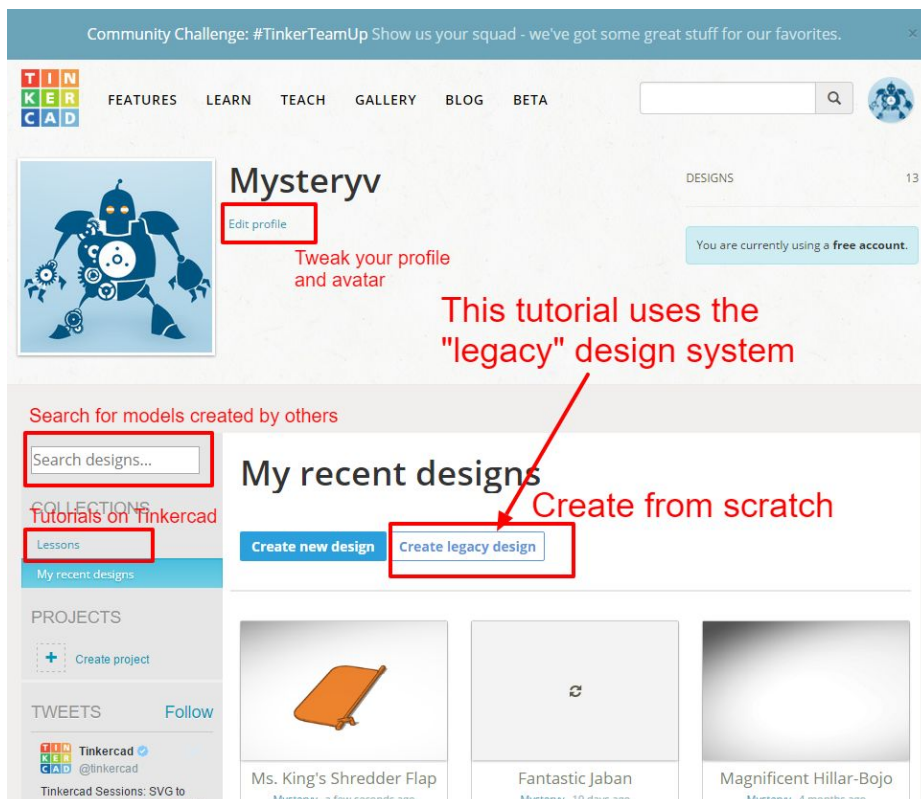
# Step-by-step Personalized Backpack Tag

This tutorial is modified from the HHS MakerSpace Tutorials online in the HHS website.



## Setting up your account

1. On a school computer, school Chromebook, or personal laptop, visit [www.tinkercad.com](http://www.tinkercad.com)
2. In the top right corner, click "Sign Up"
3. Enter your country and date of birth and click Next
4. Enter your school email account, and then enter a new password that you will use for Tinkercad.
5. Once signed in, you will be brought to your profile page. This is your starting point for work in Tinkercad.

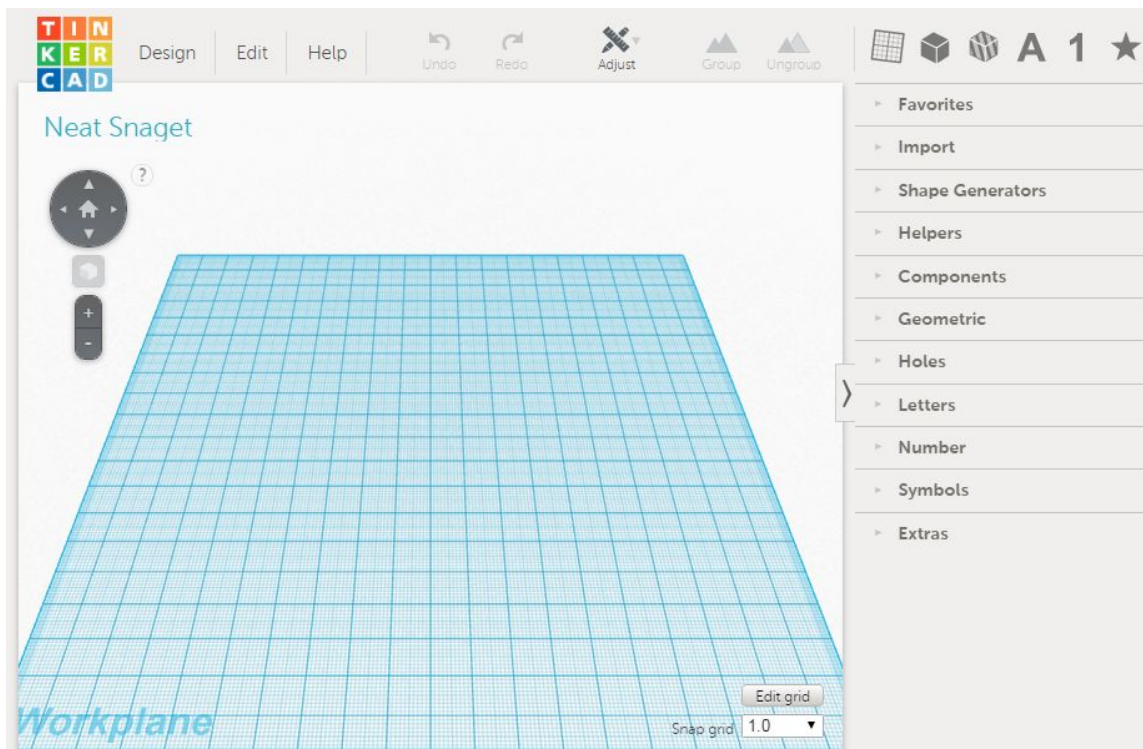


# Making your Backpack Tag

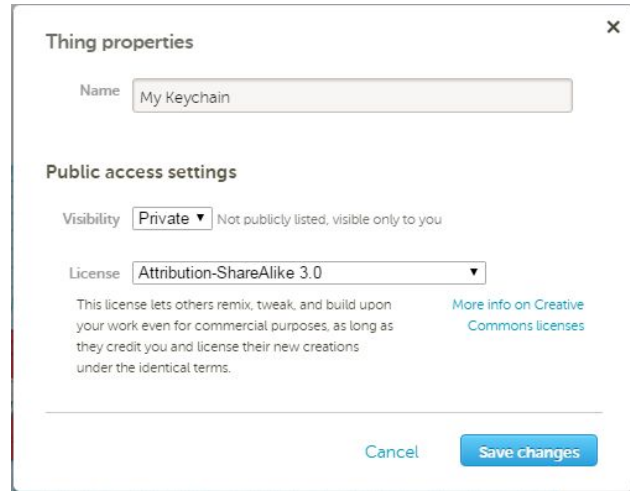
For this tutorial, we'll make a personalized backpack tag.

*Note: It is much easier to work with Tinkercad using a mouse, but a trackpad will work, too.*

1. From the profile page shown above, click the “**Create legacy design**” button. This brings you to a new blank model.



2. Your model will be given a cute, silly name -- some random adjective and fake noun, like “Neat Snaget” in the image above. Let’s **change the name** to something more useful.
  - a. In the menu, click **Design...Properties**.
  - b. Change the name to “**My Backpack Tag**” and click **Save Changes**



Thing properties

Name: My Keychain

Public access settings

Visibility: Private (Not publicly listed, visible only to you)

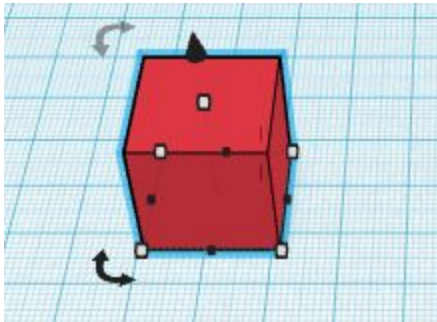
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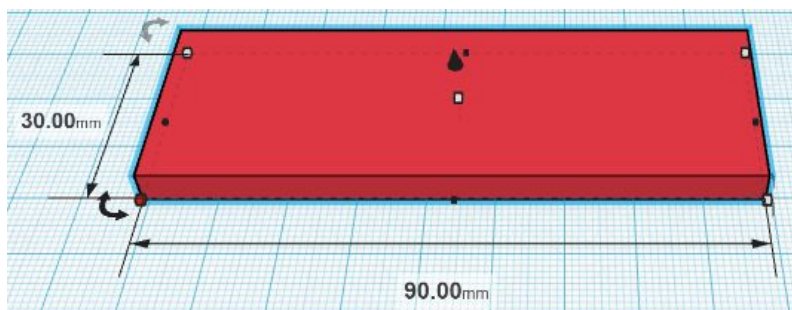
Cancel Save changes

3. From the **Geometric** category on the right, drag and **drop a box** onto the workspace.

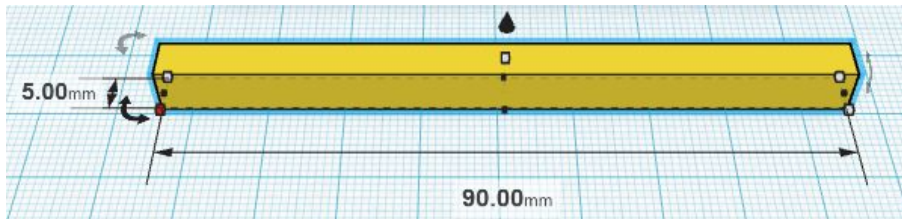


4. Resize the box so that it is **90 mm x 30 mm x 7mm**. You can do this by grabbing and dragging those **black or white dots**. The **height** is controlled by the **center white dot**. **Ignore the black cone** for now.

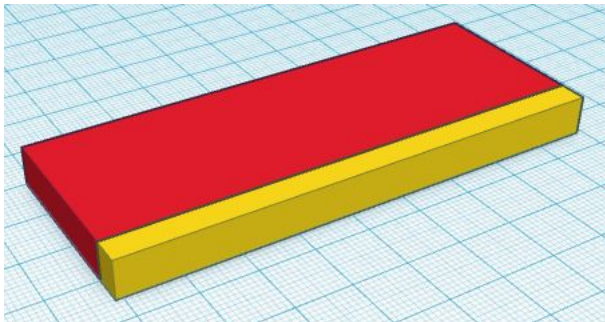
*If necessary, use a CTRL-click-and-hold to move the view around.*



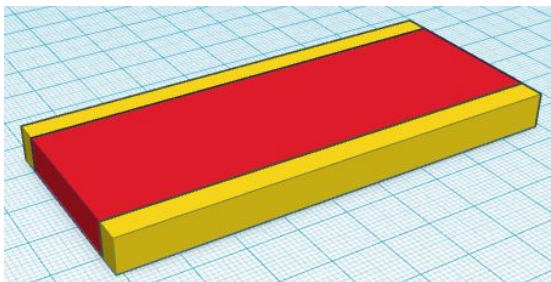
5. Make **another box**, make it yellow, and resize it **90 mm x 5 mm x 7 mm** (The yellow is just to differentiate it in these instructions)



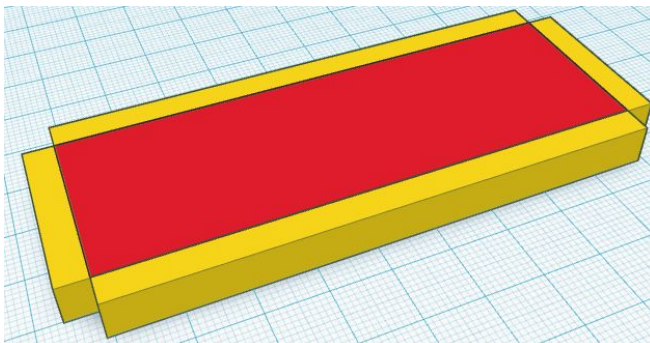
6. Carefully line the new box **along the front edge** of the original.



7. Hold the **ALT key**, and click and drag the **yellow box** (making a duplicate) to line up on the **opposite side** as well.

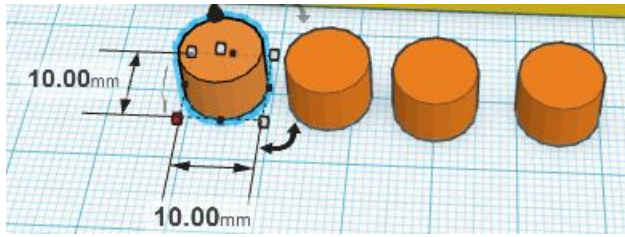


8. Create **two 5mm x 30mm x 7mm boxes** and add them along the edges.

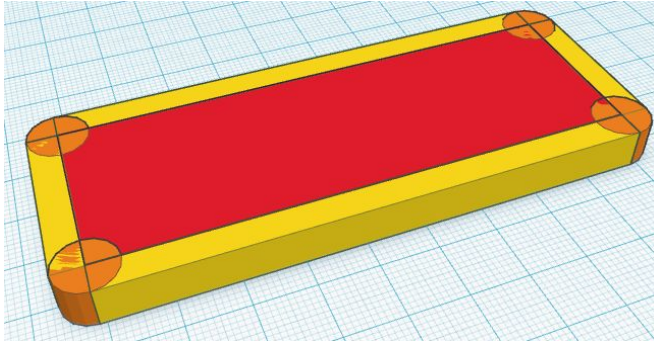




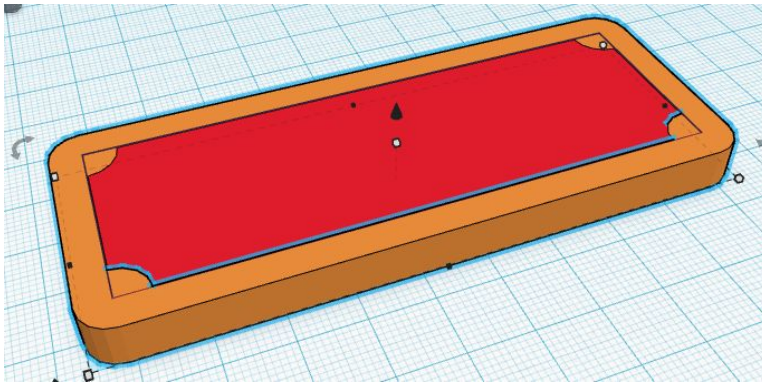
9. Create four **cylinders**, and resize them to **10 mm x 10 mm x 7 mm** each.



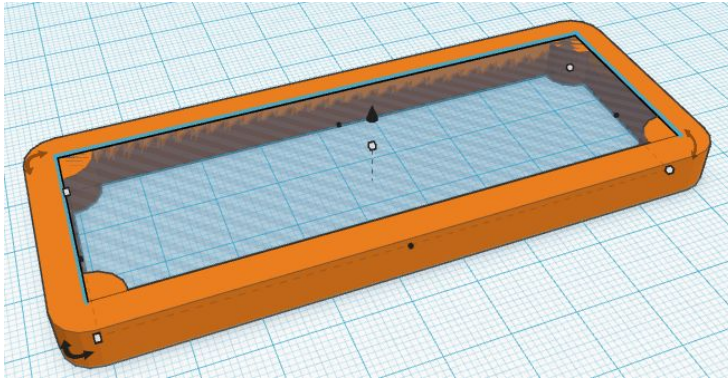
10. Drag them to the **corners** of the yellow boxes, lining them up to make round corners.



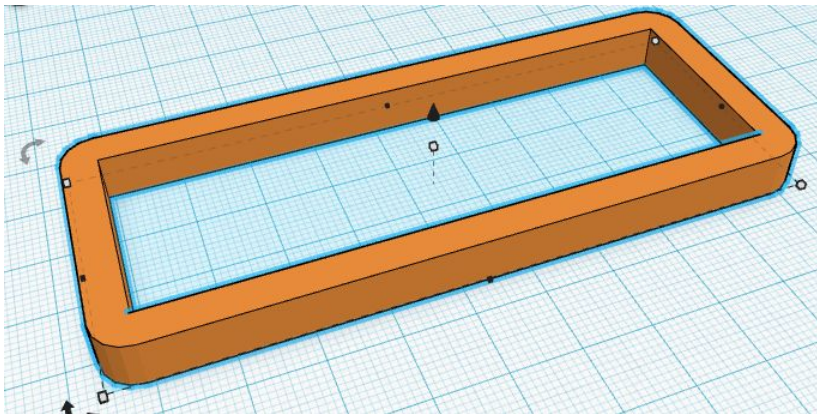
11. Hold SHIFT and carefully click to **highlight all four cylinders and all four yellow boxes**. Then click **Group** to make them one object.



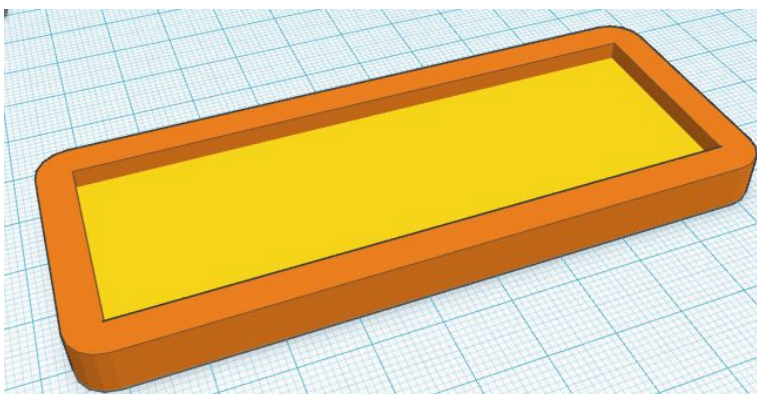
12. Here's the cool part. Click the **red box** and click the **Hole** button.



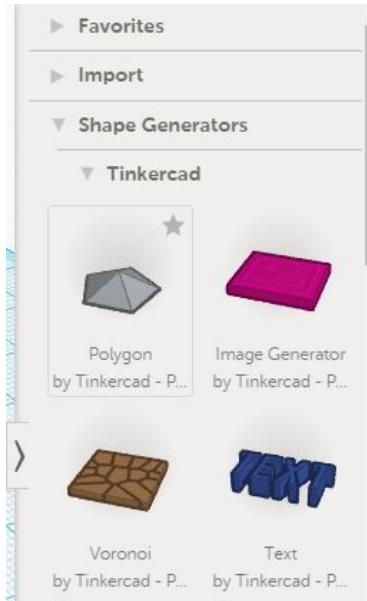
13. Use SHIFT-click to highlight **both** the orange shape *and* the hole shape, and click **Group**. BAM! Now, instead of a solid shape, that box cuts a hole in whatever it touches. In this case, it trimmed off those inner curves.



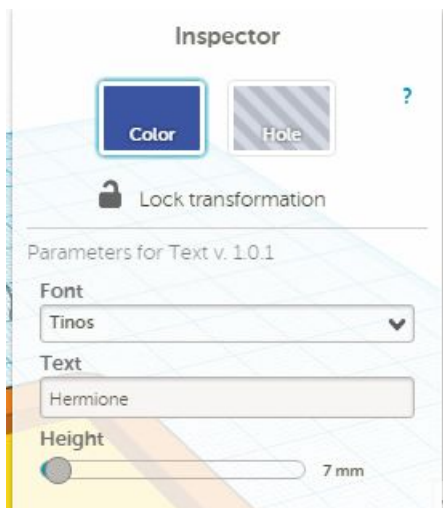
14. Make another **90 mm x 30 mm box**, but make it only **4 mm tall**. Put it in the middle of the orange shape. Move the camera around and make sure the new box completely fills the space on all edges.



15. In area on the right, open the **Shape Generators > Tinkercad** category, and find the **Text shape**



16. Drag a new **Text shape** onto the workspace. Choose a **font** and enter **your name** as the text. Set the height as **7 mm**.





17. Drag the name into the **center** of the tag (resize if necessary, but then re-adjust the height back to 7 mm).



18. Give the name a little **horizontal rotation** to make it interesting.

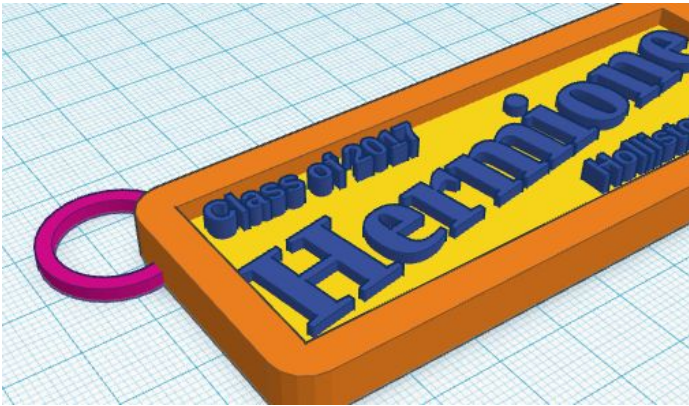


19. If you want, add some **smaller text** in the corners





20. From the **Geometric** category on the right, find the **Tube (Thin)** shape and drag it onto the workspace. **Overlap** it in the corner. (Ours is magenta, just to show up in the illustration)



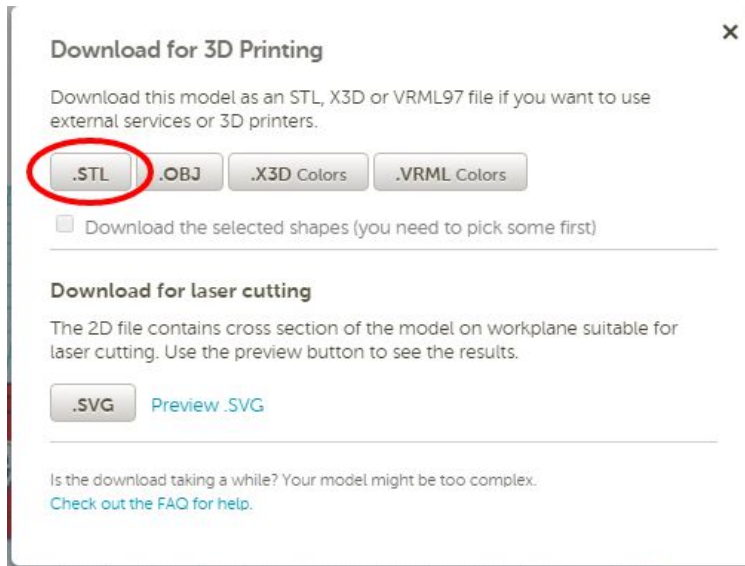
21. To get a better idea what the final product will look like, select all of the pieces and set the color to whatever you might choose when your print.



**That's it!** Go through your model carefully to make sure it looks good, because the next step is to send it to the 3D printer!

## Send for printing

22. Go to **Design > Download for 3D Printing**. Click **.STL**. This is the file type that the printer can read.



23. Go to the Maker Space print for at <http://tiny.cc/hhsmakerupload>. Fill out the form, and upload your .STL file.

Mr. Reeve and the PIT Crew will print out the tags over the next few days!

**If you like this project, you can do more! Go over the HHS website and visit *Online Resources > MakerSpace Tutorials* for a set of tutorials and challenges that you can make and print!**