Toy Block Tutorial – Inventor Professional

In this tutorial, you will construct a ***toy block***. The toy block will have a six letter child's name cut into the surfaces – one letter per surface. The toy block will be constructed out of material that is child friendly.

Part I – Create the 3-D Part

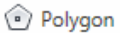
1. Open Inventor. In the ***Get Started*** tab, click on **Projects > New > New Single User Project.** Click ***Next.***

2. In the ***Project Name*** box, type **Toy Block**. In the ***Project (Workspace) Folder***, Click on the browser box to select your **H:\ drive**.

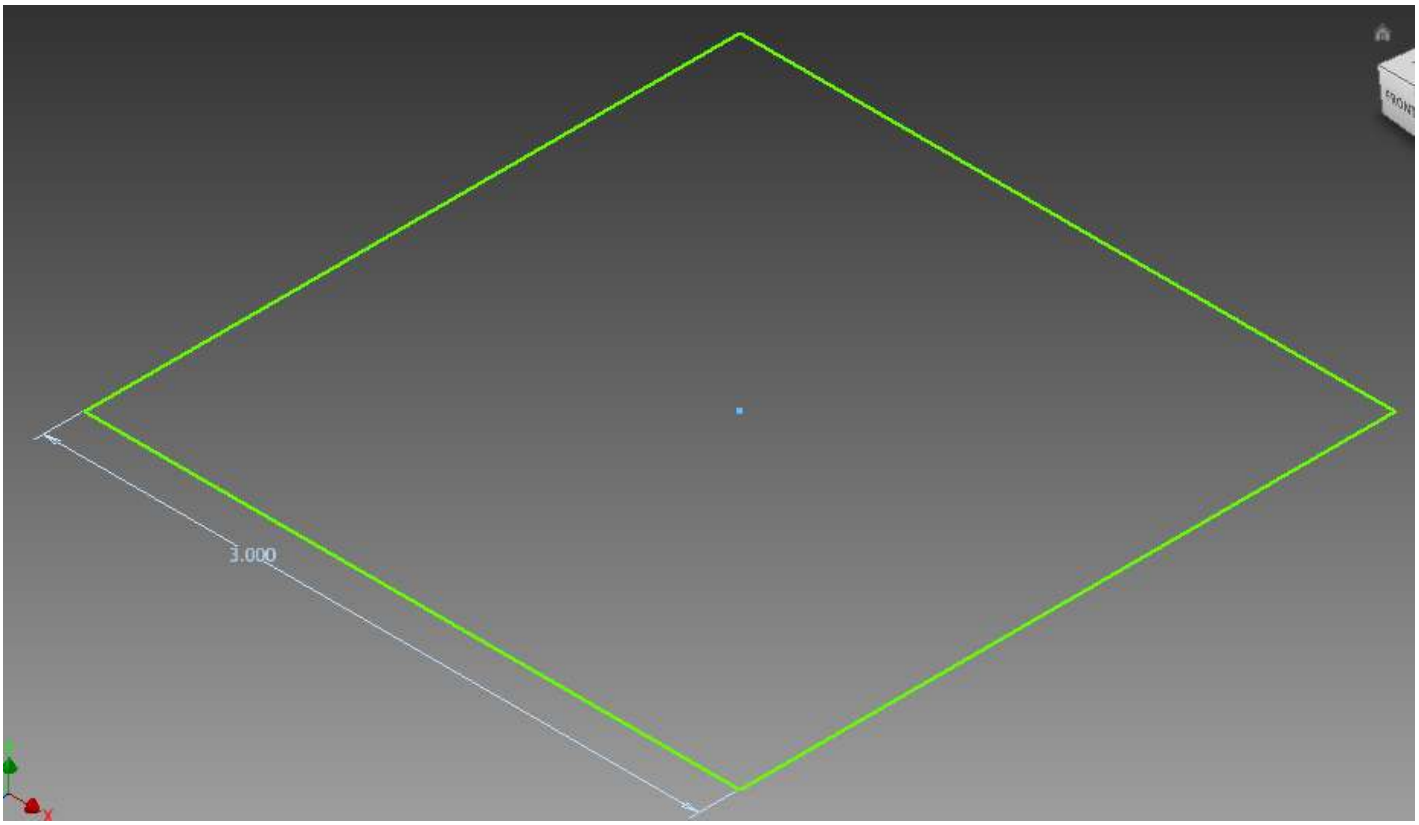
3. In the ***Browse for Folder*** box, navigate to your **Intro to CAD** folder. Click on ***Make New Folder***, and name the new folder **Toy Block**. Click ***OK* > *Finish* > *Apply* > *Done***.

4. ***You will use this process whenever you start a new project.***

5. In the ***Get Started*** tab, click on **New**. In the ***New File*** box, click **"standard.ipt",** then **OK**. This will open a new, standard part file in Inventor.

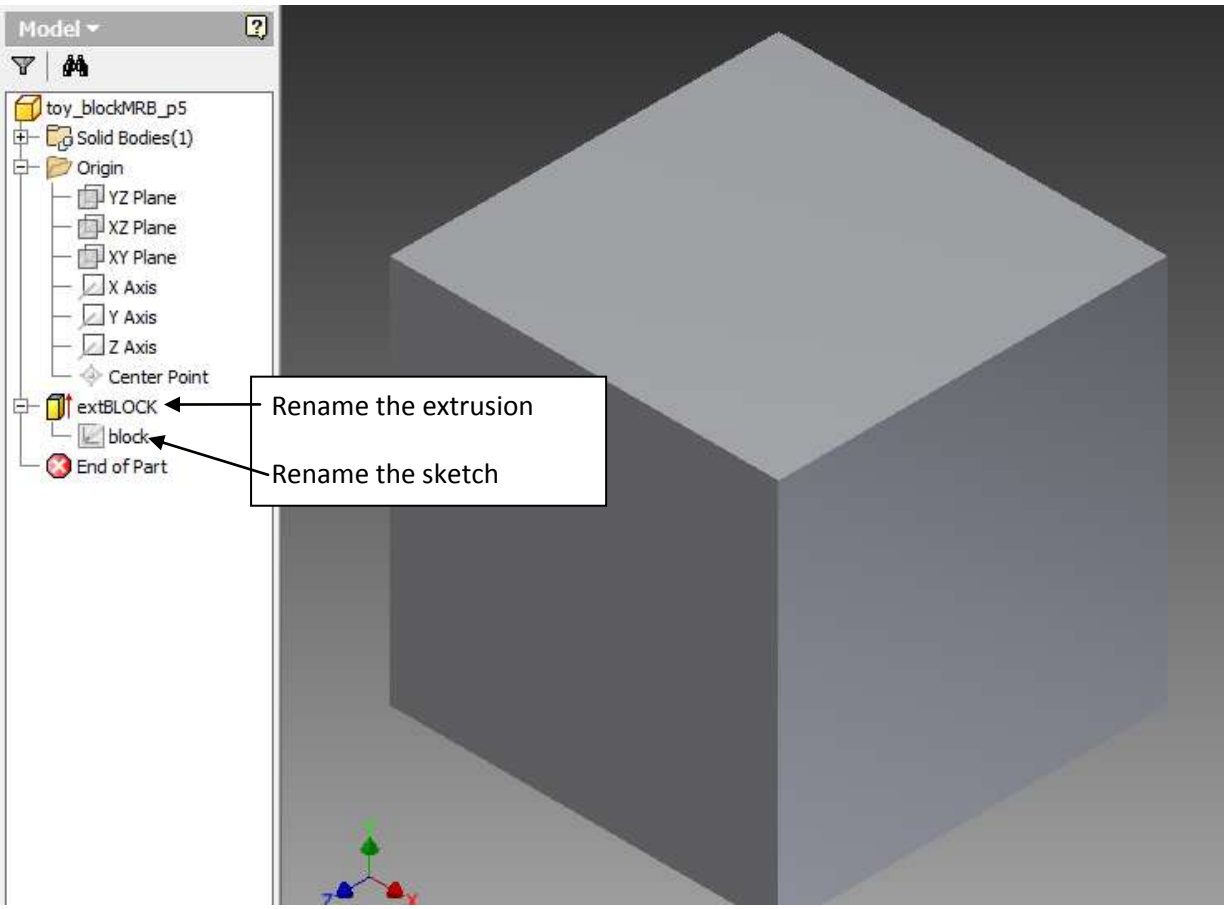
6. Save the new part as "***toy_block_INL_p5***", where "INL" should be ***YOUR*** initials and "p5" should be ***YOUR*** class period. Since you set up a Project Folder, your new part will automatically be saved there.
7. Go to **Tools > Document Settings > Units.** Set the ***Length*** units to ***Inches.*** Leave the rest of the settings unchanged.
8. Create a ***New Sketch*** on the "XZ" plane.
9. Click on the **Polygon** tool 

. Create a ***4 sided polygon***, starting at the **Origin Point**. By using the Polygon tool, instead of the rectangle tool, you will create a four-sided, equilateral polygon (a square). This allows you to dimension just one side, as well as keep your design symmetrical for later redesigns.
10. Be sure to snap the square so that the sides are parallel to the "X" and "Z" axes.
11. Dimension one of the sides of the square. Set the value at ***3"***. Click on ***Finish Sketch***. Watch Video 1



12. ***Click***, pause, then ***click again*** on the sketch in the **Browser** window. **Rename** the sketch to **"block".**
13. Click on the Extrude icon 

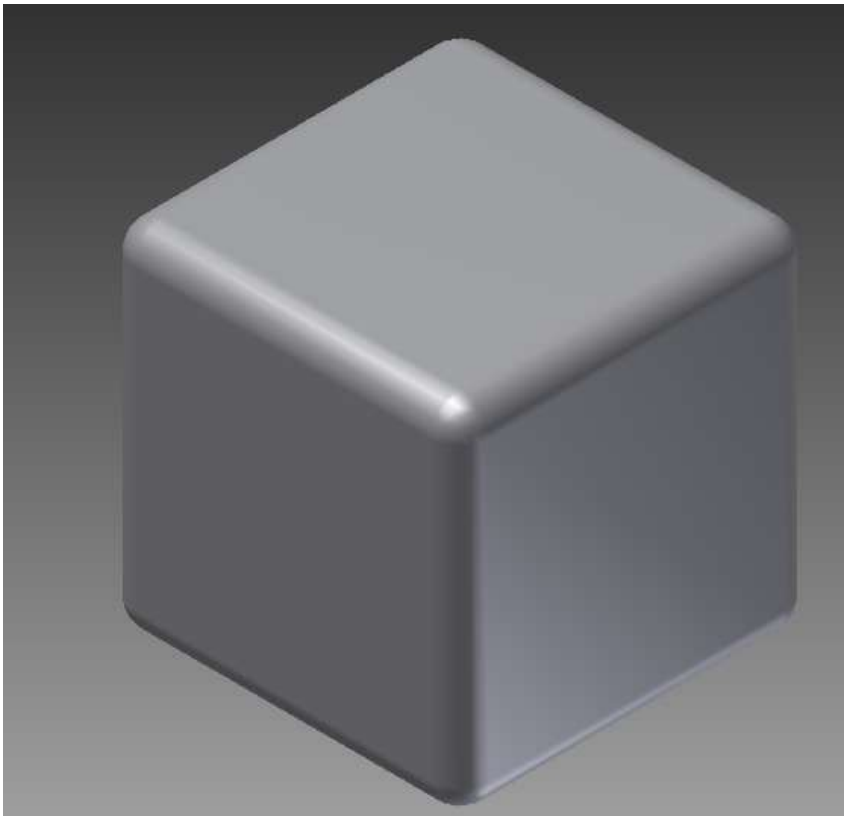
. Select the 3" square and extrude the profile to 3". You now have a 3" cube (3X3X3). Rename the extrusion to **extBLOCK**. See the figure on the next page. ***SAVE YOUR WORK*** Watch Video 2



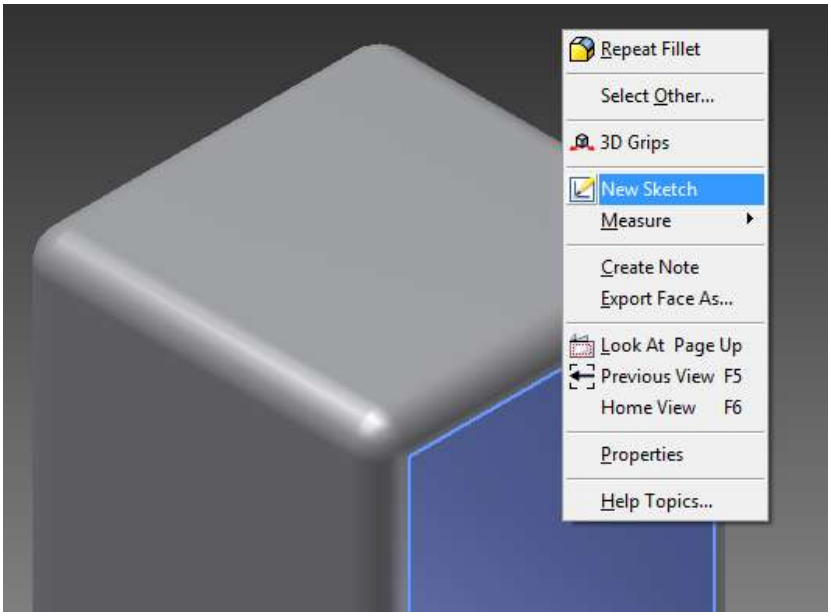
14. Be sure ***Select Faces and Edges*** is selected in the Select drop down menu. The **Select** menu is located in the **QAT** – just above the ***ribbon***.

15. Select the ***Fillet tool*** . Check off **All Rounds** and change the ***radius*** to .25. See below.

Notice also that by selecting ***All Rounds***, you have selected ***all 12 edges*** of the cube. Click **Apply**, then **Cancel** or ***close the box***. Your block should now be fully rounded like the one below: ***SAVE YOUR WORK*** Watch Video 3



16. Select any visible face > Right Click > ***New Sketch***.

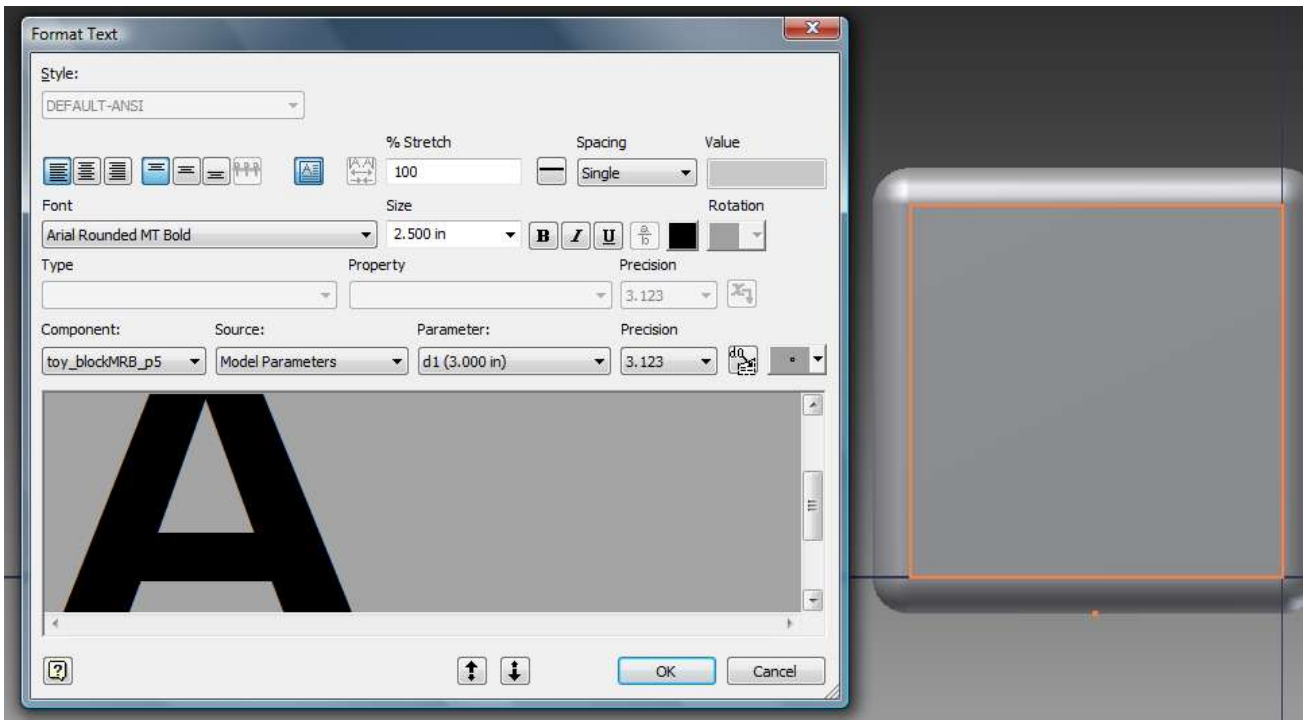


17. Click on the ***Text tool***  from the **Draw** panel in the **Sketch** tab.

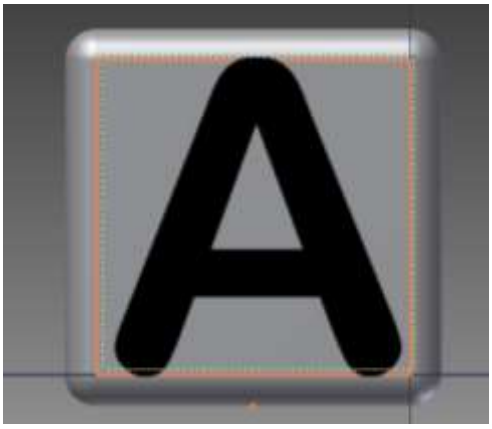
18. ***Drag*** a rectangular selection area where your first letter will be placed. We will use the letters A,B,C,D,E,F for this tutorial, so our first letter will be A. You can use any appropriate name – or use ***YOUR*** name!

19. Select your ***font*** (tip – you can preview fonts using Microsoft Word. **Inventor** does not have a font preview).

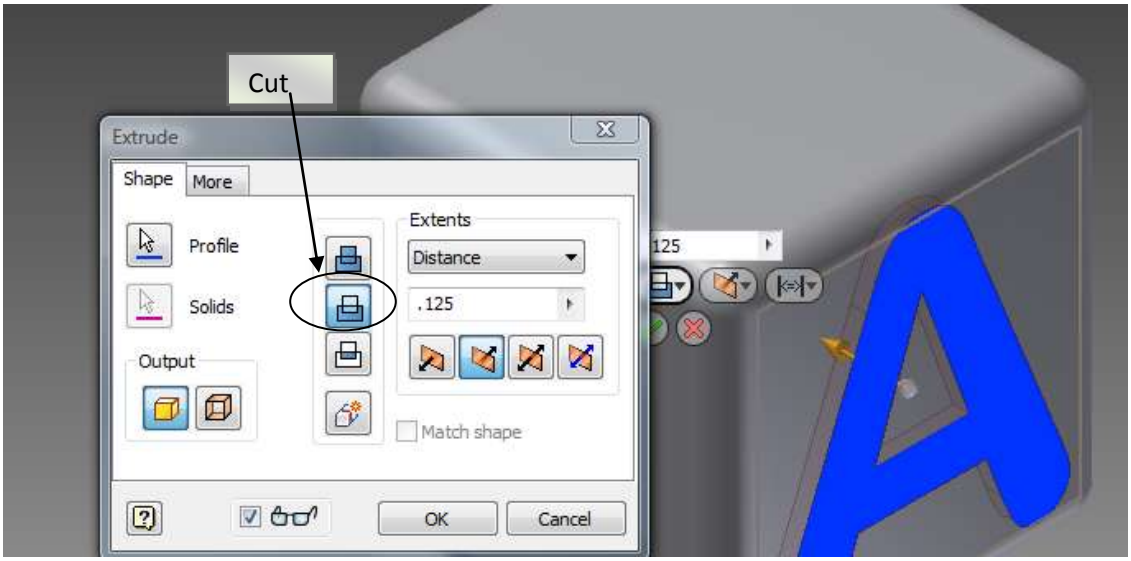
20. Be sure your font is **2.5"** in ***size***. You may have to go slightly larger or slightly smaller depending on the font style. Click **OK**.



21. You may have to fine tune the position of the letter with your mouse. When your letter is placed correctly, click ***Finish Sketch***.



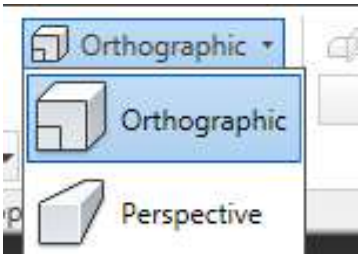
22. Click on ***Home*** in the **View Cube** area to orient your view isometrically. ***Extrude*** the profile of the first letter as a ***Cut, .125"*** . Click **OK**. ***SAVE YOUR WORK***



23. Be sure to rename both the sketch and the extrusion. ***THIS IS VERY IMPORTANT IN KEEPING TRACK OF THE SKETCHES AND EXTRUSIONS IN A PART. IT IS ALSO A MAJOR GRADING CRITERION FOR THIS ASSIGNMENT.***

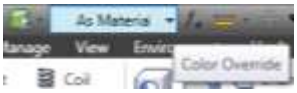
24. Go to ***View > Visual Style > Shaded with Edges***. This will allow you to see the block features more clearly. Watch Video 4

25. Experiment with the ***Orthographic/Perspective*** settings in the View panel.



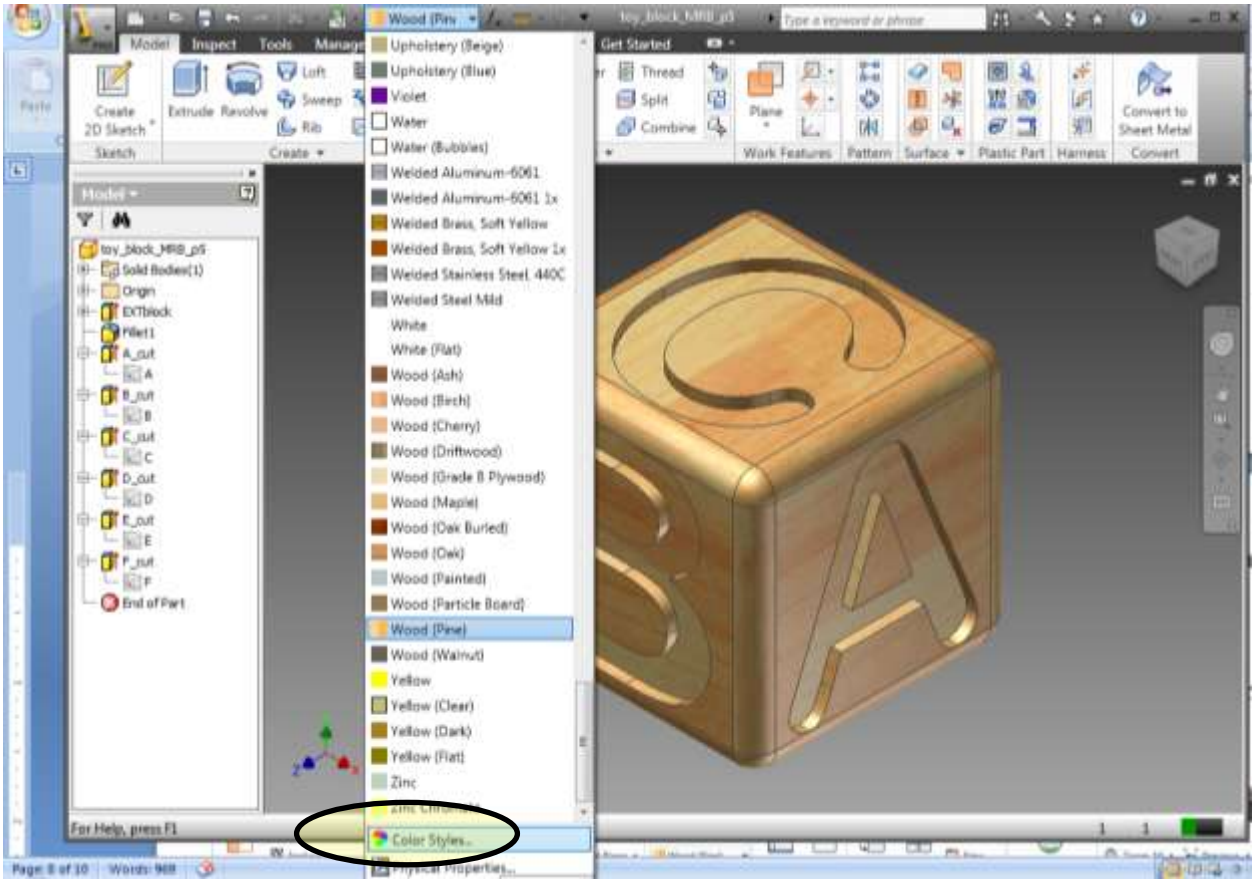
26. Repeat steps 16 thru 23 until you have created all six letters for all six sides. Remember to ***SAVE YOUR WORK*** periodically**.**

Part II –Add Color/Textures

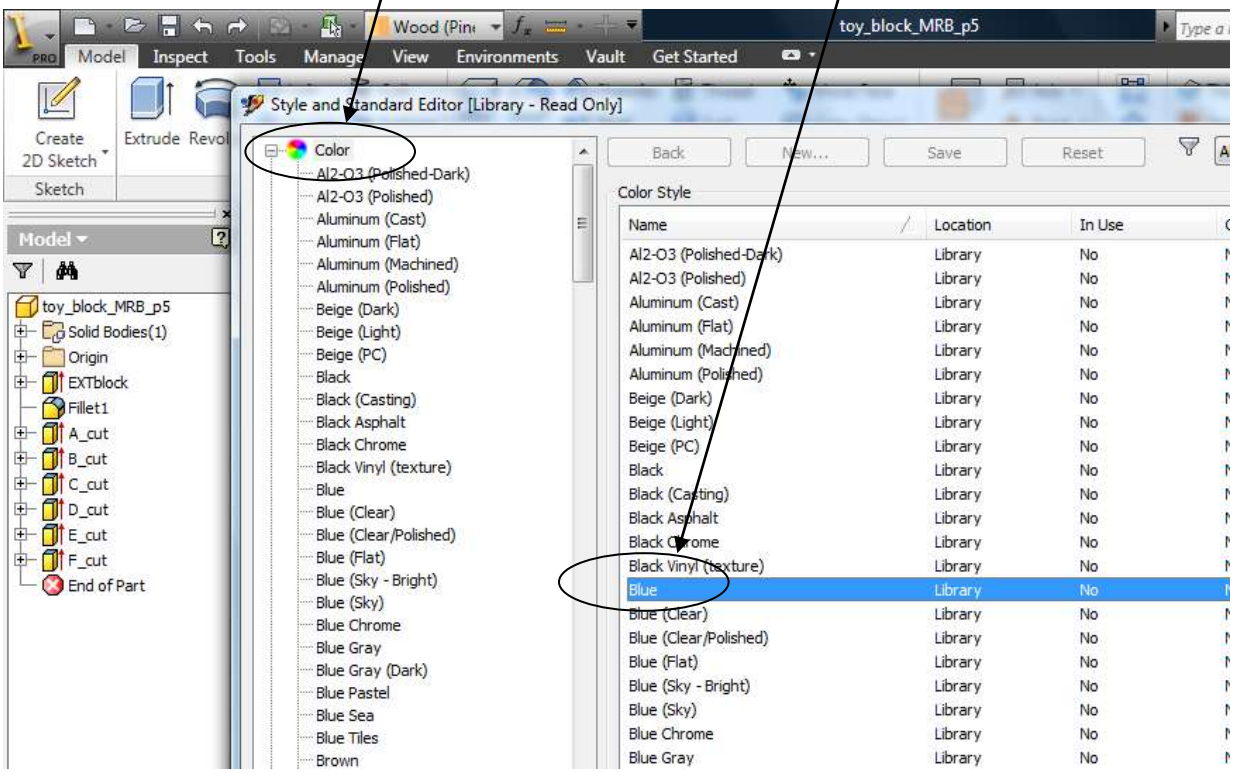
27. Click on **Select Bodies** from the **Select** menu on the **Quick Access Toolbar (QAT).**
28. Click on the ***Color Override*** drop down menu 

– located to the right of **Select Bodies**.
29. Select one of the **Wood** options. Your block should change to the wood textured color.

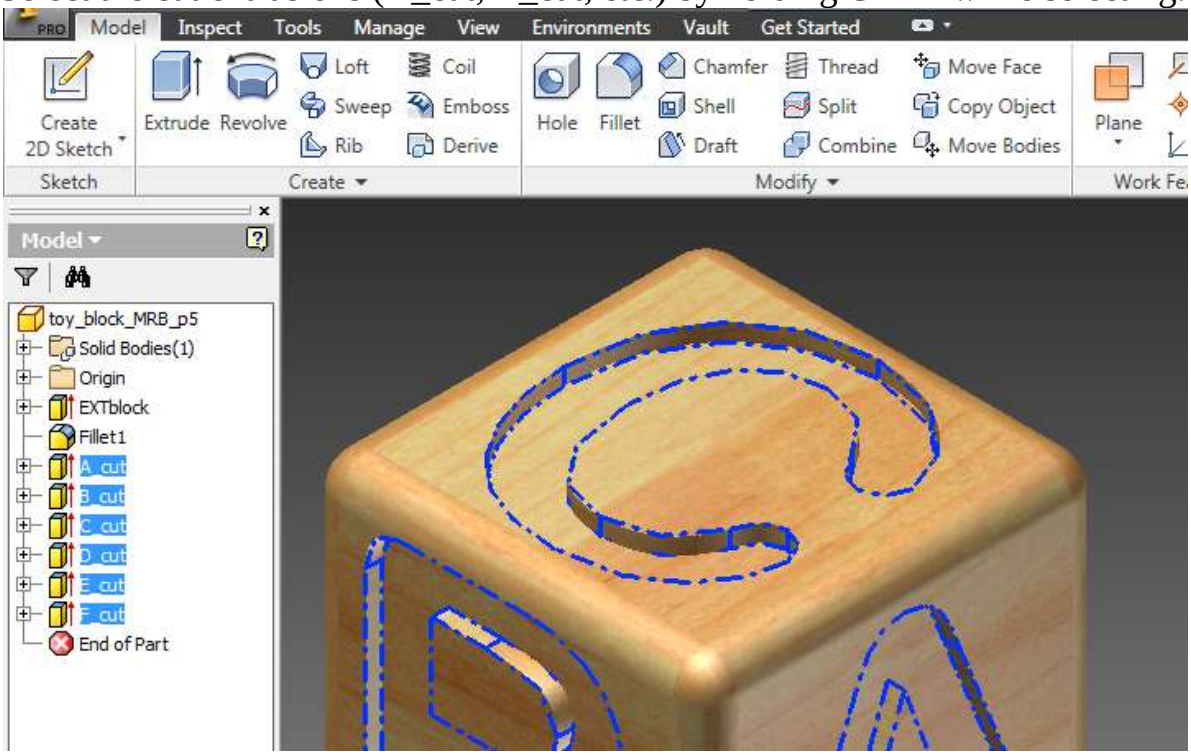
30. Click on ***Select Features*** from the **Select** menu. Select ***Color Styles*** from the **Color Styles Menu.**



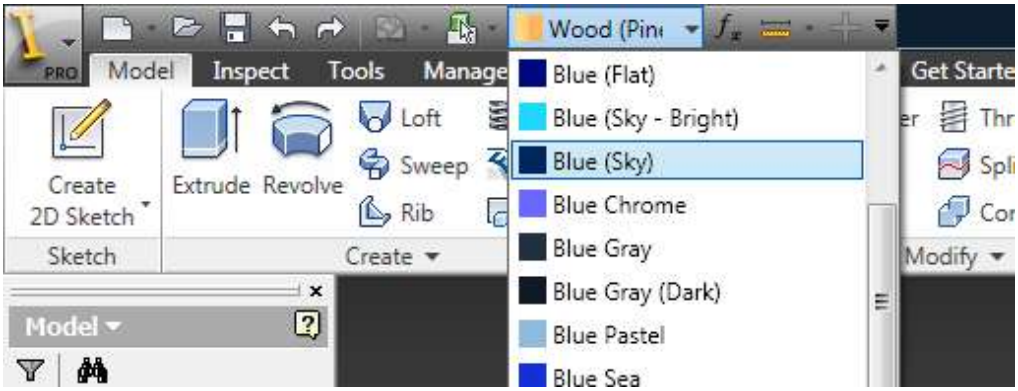
31. Click on the Color ***heading on the left***, then choose a ***color*** on the right. Click **Done.**



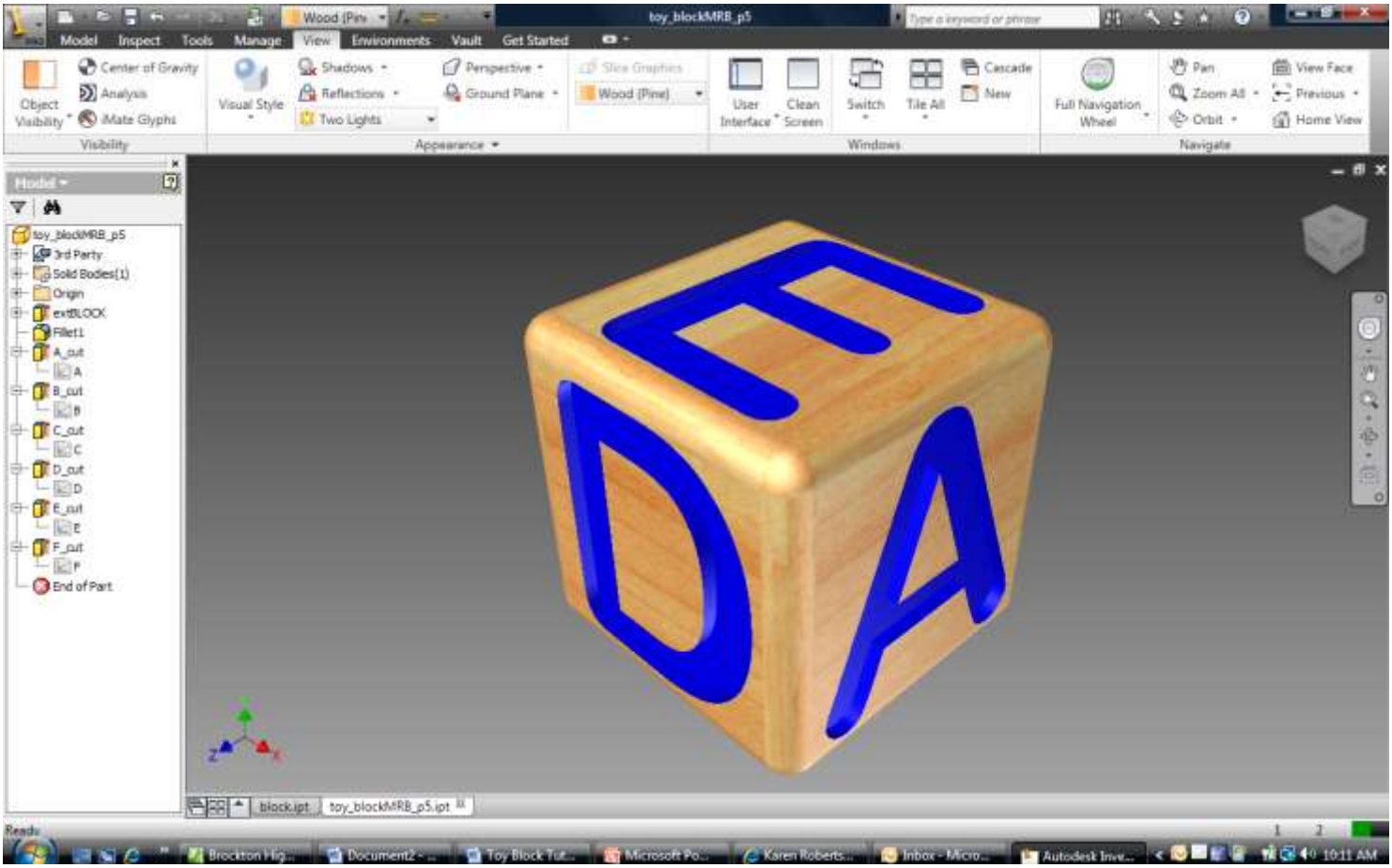
32. Select the cut extrusions (A_cut, B_cut, etc.) by holding ***CTRL*** while selecting.



33. After all extrusions are selected, ***choose your color again*** from the **Color Override** menu.



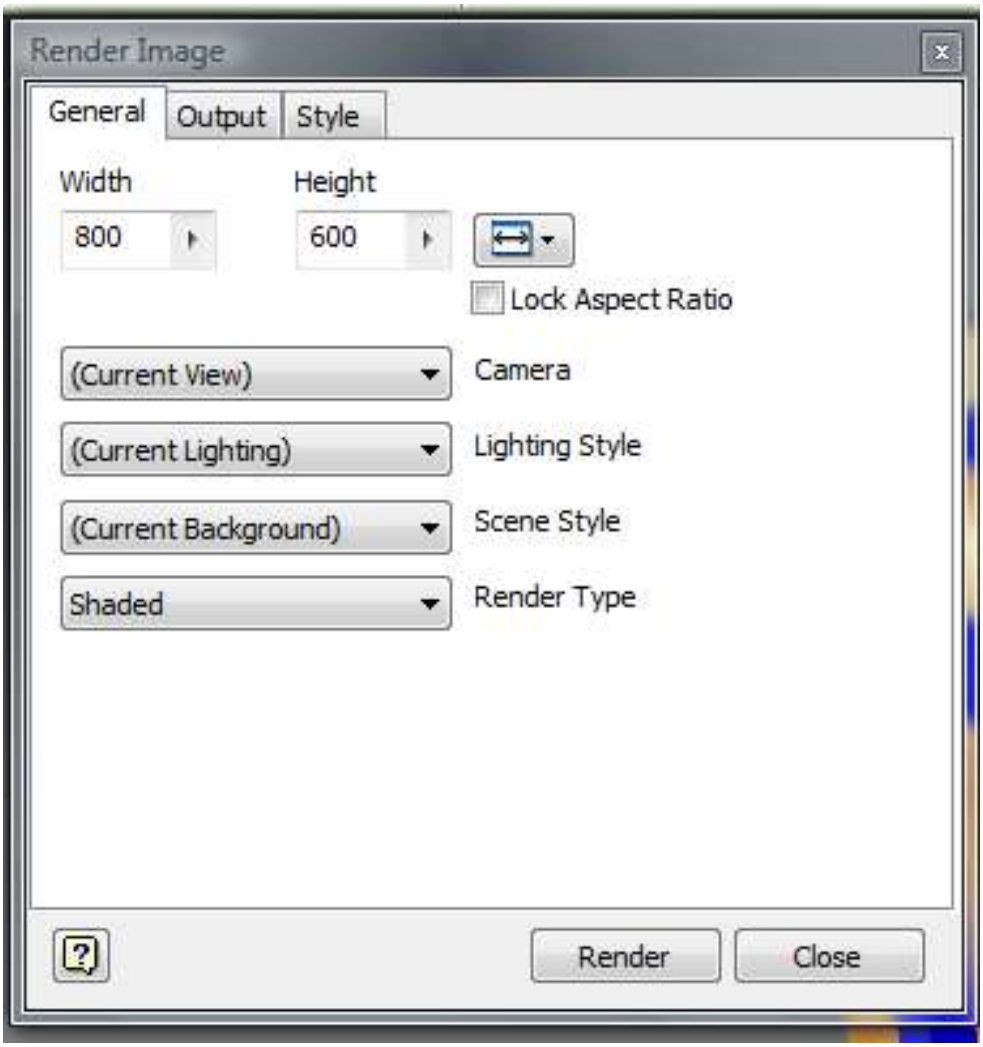
34. Finally, change your ***View Style*** back to **Shaded**. ***SAVE YOUR WORK*** Watch Video 5



Part III – Render an image of your 3-D part

35. Go to the **Environments tab > Inventor Studio.** For this assignment, we will only create an image, but you can see by the options that you can also create an animation, change camera angles, lighting styles, scene styles, etc. You are encouraged to experiment with these tools when you have finished with creating your image.

36. Click on **Render Image**. The box below should appear. In the **General Tab**, change ***Height and Width to 800 X 600***. Choose your ***Lighting Style, Scene Style*** and ***Render Type*** – whichever options you like.



37. In the **Output Tab**, select ***Save Rendered Image*** and click on the Folder Icon. Navigate to your "***H" drive > CAD>Toy Block*** folder. Name the image as ***toy_block_imageMRB_p5***, using ***your*** initials and ***your*** period number. Click on Render. The image will appear in your CAD > Toy Block folder.