

Didn't you always want to see your initials in a field?

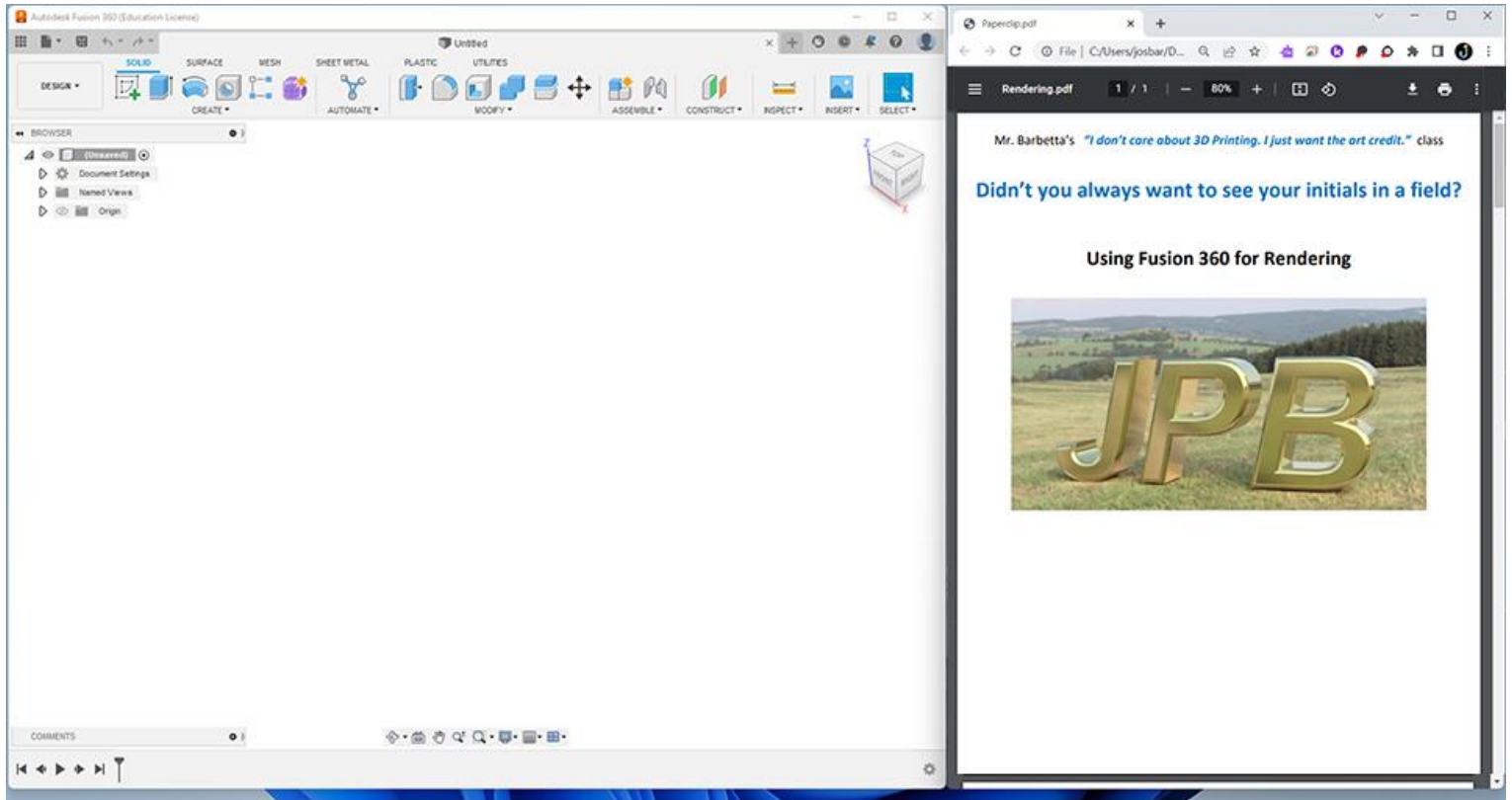
Using Fusion 360 for Rendering

Useful for either to dressing up a presentation or fooling a teacher that you actually printed something.

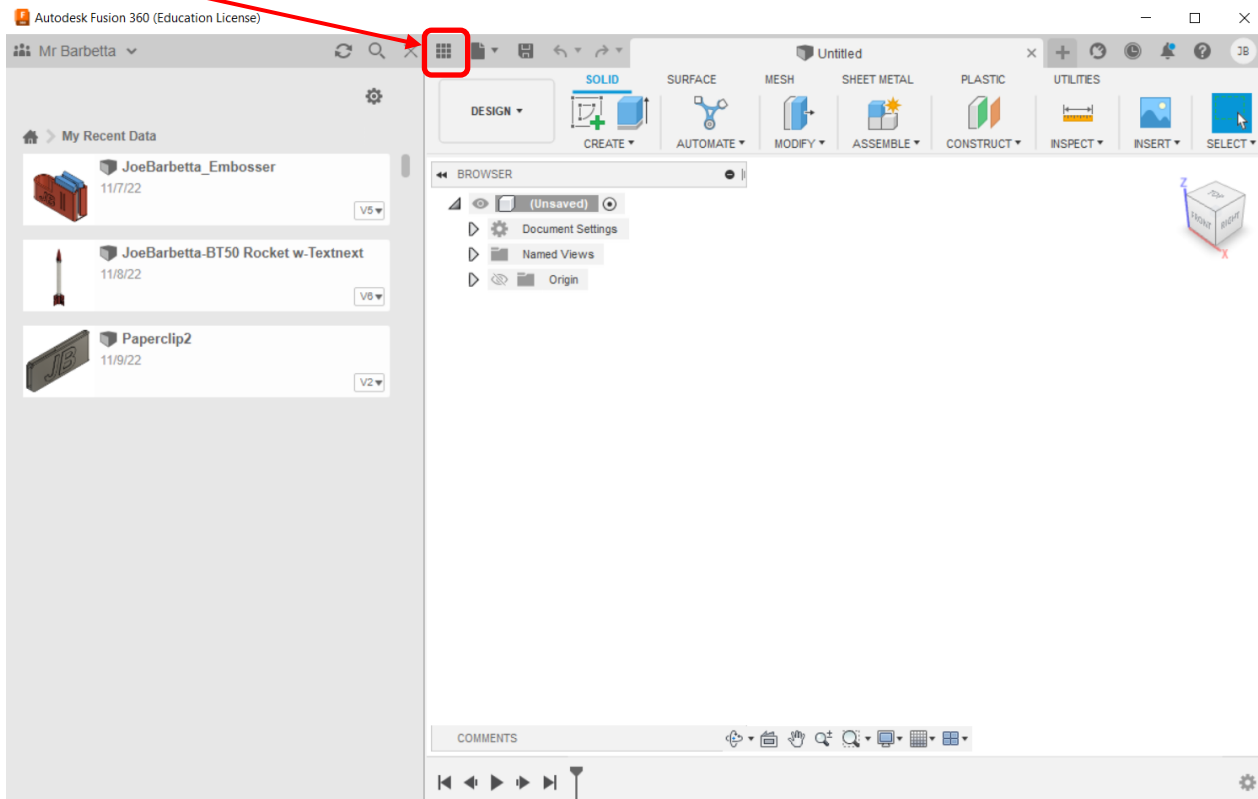


Using This Document

The best way to follow this document is to **reduce the width of the Fusion 360 window** and have this pdf document open in Chrome browser as shown below. This document can be **downloaded from Schoology** and then **dragged into Chrome** and scaled down to 80%.

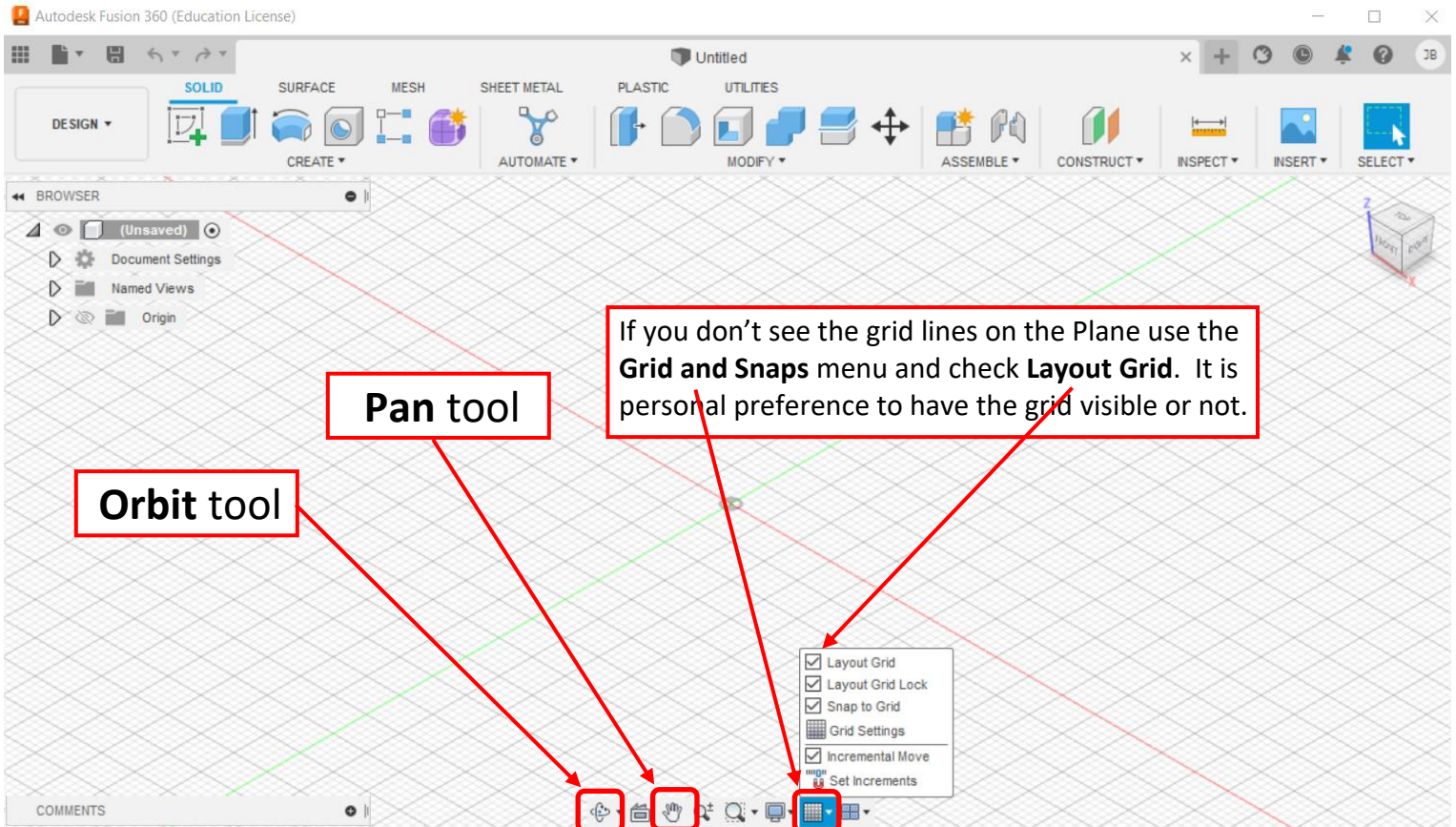


The Fusion 360 window will not allow its width to be reduced much so for smaller computer screens a trick is to click on the **Data Panel** icon and then move the window to the left with the Data Panel off the screen.



Changing the View of a Design

- if you don't see a grid in the Fusion 360 window, as shown below, click on **Grid and Snaps** and check **Layout Grid**. Displaying the *Layout Grid* is a matter of preference. When designing for 3D printing, it can be used to represent the *build plate*.
- click on the **Orbit** tool and click somewhere on the **Grid** to practice rotating and changing the angle of the view.
- click on the **Pan** tool and then on the **Grid** to practice moving the view laterally.
- after using the *Orbit* or *Pan* tool one must press the **Esc** key to exit that mode.
- use the **Mouse Wheel** to practice Zooming in and out.



Here is a close-up of the View Cube at the top right of the window.

- click on the **View Cube** and move the cube while holding the mouse button down. This is another way to rotate the view.
- click on the **Top** of the View Cube and note how the view just jumped to a Top View.

The View Cube now resembles that on the right.

- click on the **Curved Arrows** at the upper right of the View Cube and practice Rotating the View.
- click on the **Arrows** at the sides of the View Cube to practice jumping to various Views.
- click on the **Home** icon to the upper left of the View Cube. This can always be used to reset the view to the Home View



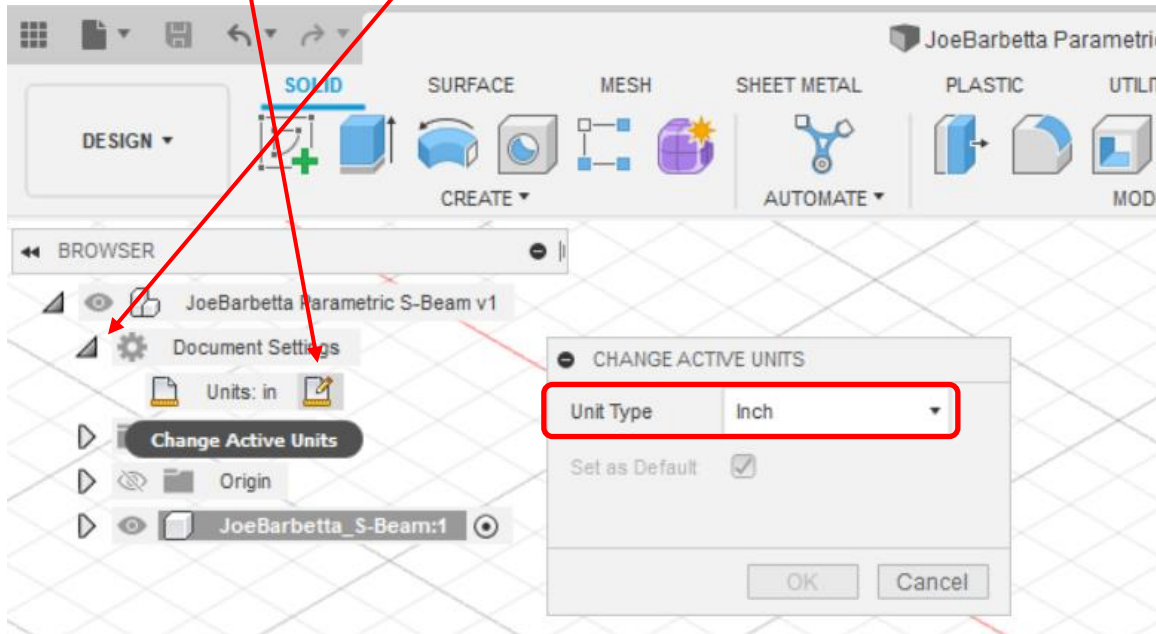
Starting a Design in Fusion 360

- open **Fusion 360**. If there is no icon on the Desktop, use the Windows search (magnifying glass icon) and type **fu**
- from top **File** icon select **Save** and name the file.
Use your name followed by **_Rendering** e.g. **JoeBarbetta_Rendering** (note the use of the underscore)

Note that by default Fusion 360 saves your project to “the cloud”, which are the servers managed by AutoDesk. When you log into Fusion 360 on a different computer, your projects will be available.

As you work you may want to occasionally save your work in case Fusion 360 crashes or an asteroid hits Earth

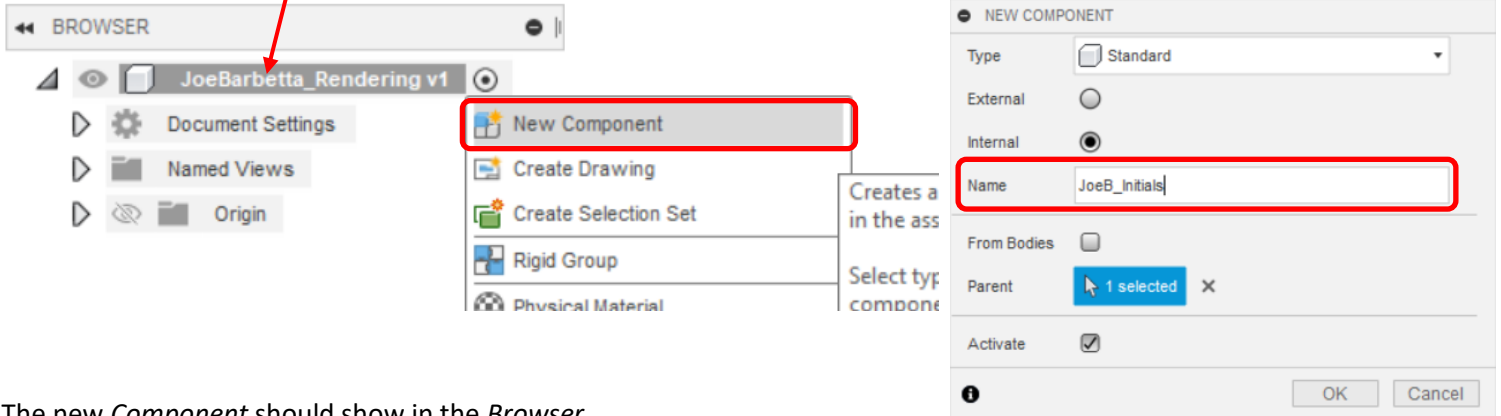
- in the left "**BROWSER**" click on the **arrow next to Document Settings**
- click on the **edit icon** that appears to the left when you hover over **Units**
- change **Unit Type** to **Inch**



Creating a New Component

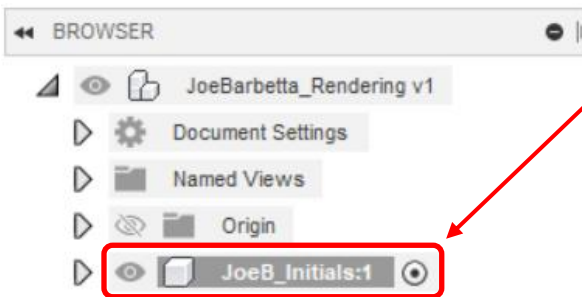
To keep a project organized it is recommended to create a new Component for each part.

- right-click on the **Project Name** at the top of the BROWSER and select **New Component**
- set Name as **Your first name and last name initial followed by _Initials** e.g. JoeB_Initials and click **OK**



The new *Component* should show in the *Browser*.

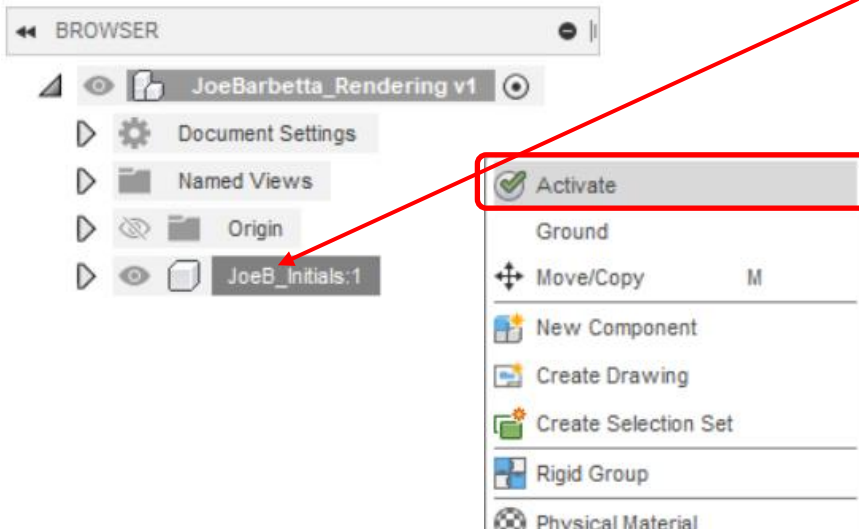
Note that the area around the name is darkened and the circle with the dot. This indicates that it is the **Active Component**.



One reason to hate Fusion 360!

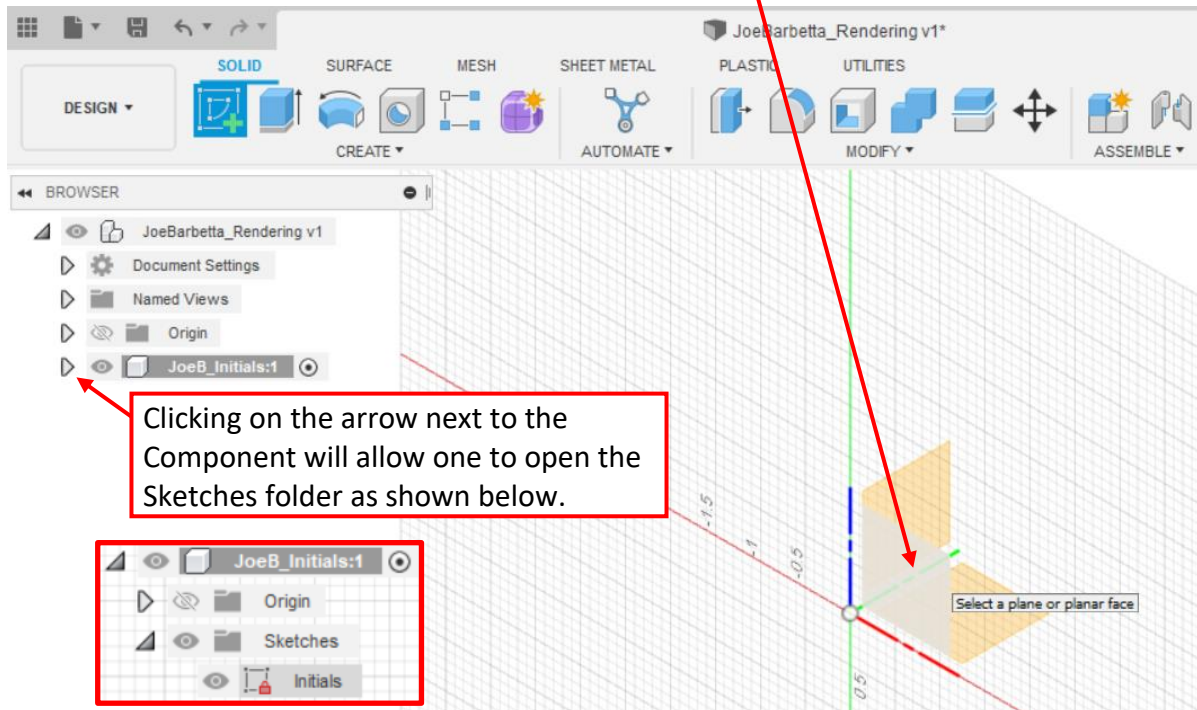
When a project is saved and then reopened, the Component that was Active is no longer Active.

If one wants to continue working on a Component, it must be reactivated by **right-clicking on the Component Name** and selecting **Activate**. One can also click on the circle to the right of the Component name.

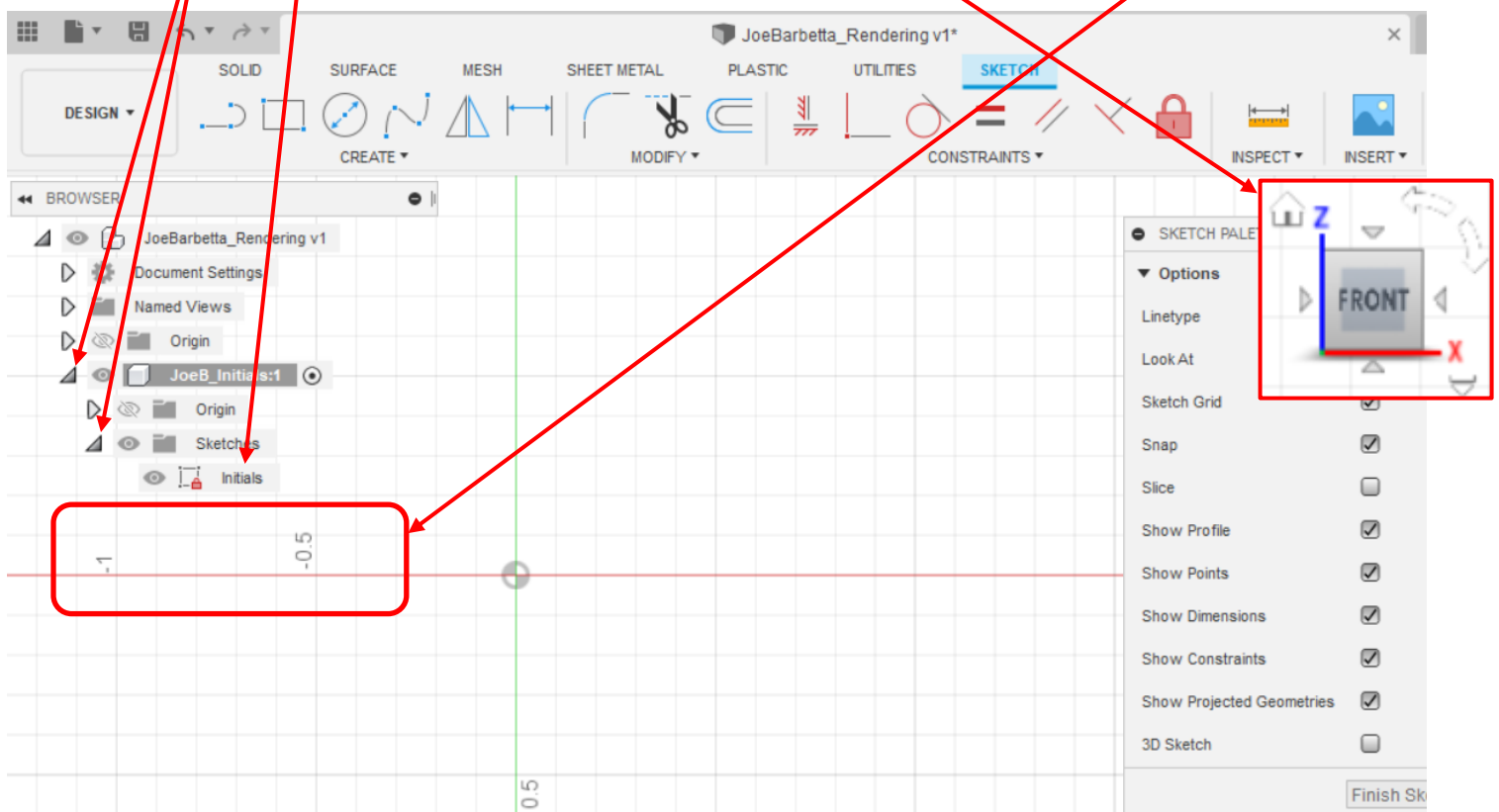


Creating the a Sketch

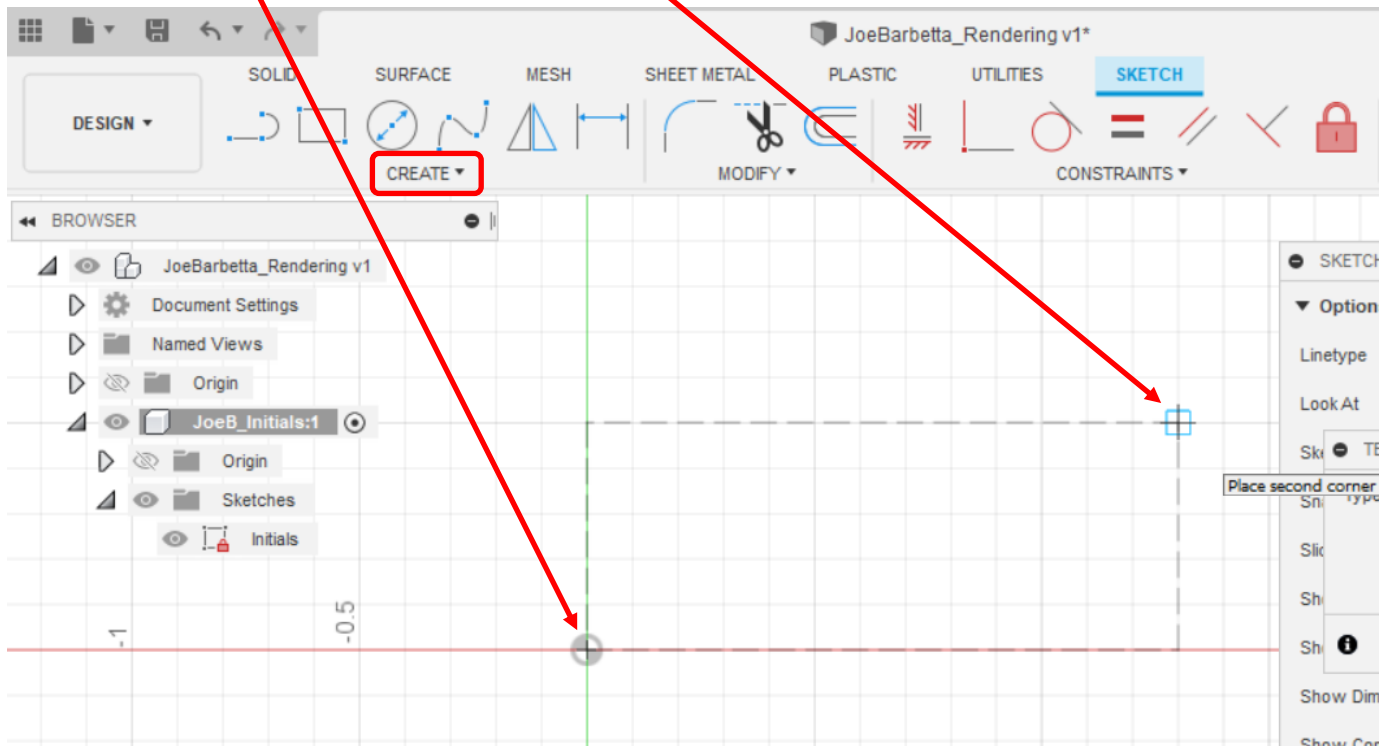
- select the top **Create Sketch** tool and click on the **front rhombus** to select the X-Z Plane.
- If a tool can't be found, one can always look in the **CREATE** and **MODIFY** menus for it.



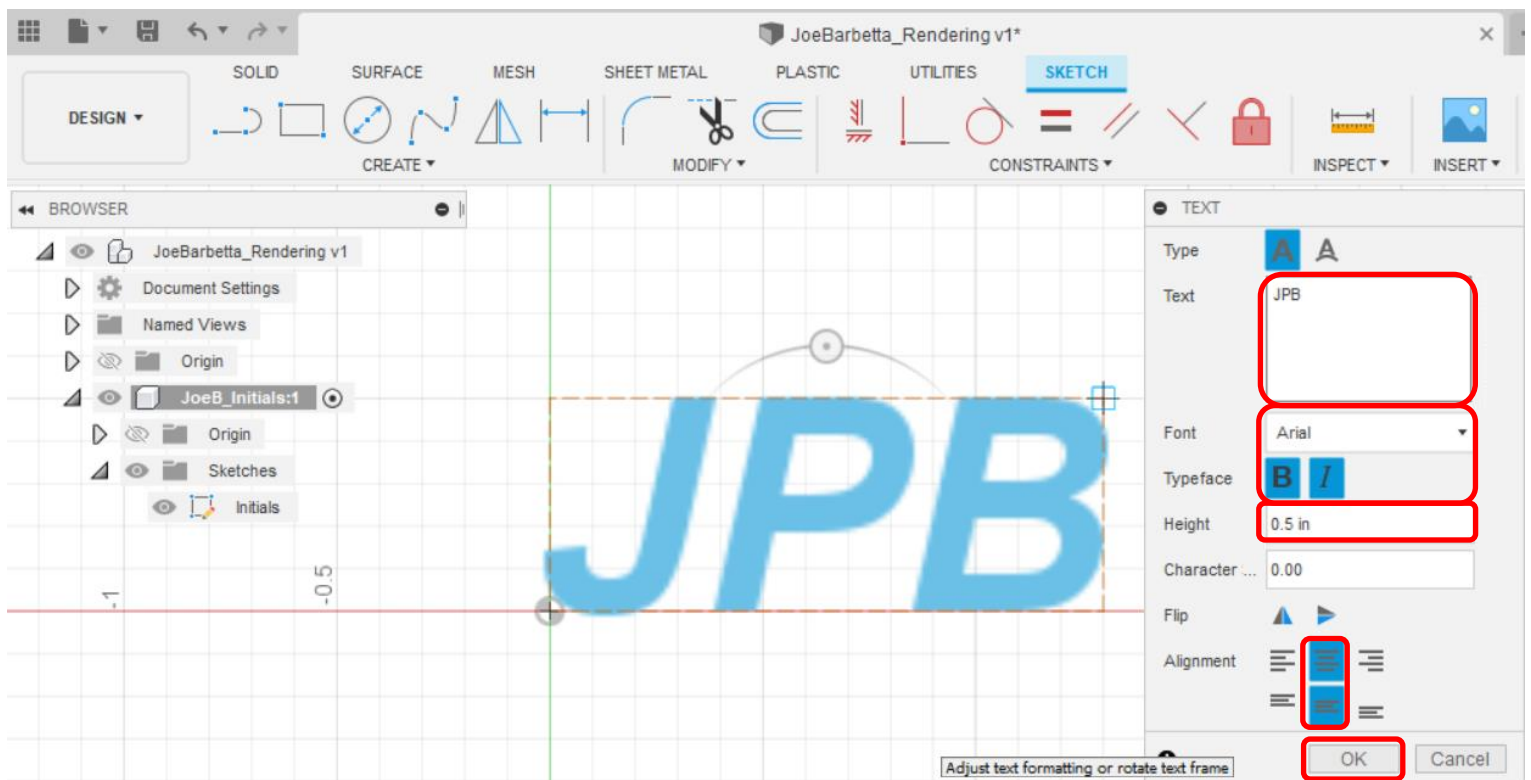
- verify that the View Cube at the upper right shows the **X** and **Z** axes as shown. If not use **Undo** and ensure the proper rhombus was clicked on in the previous step
- click on the **arrows next to the new component** and then **next to the Sketches folder**
- right-click on the **Sketch name** and rename it to **Initials**.
- zoom in (and reposition if needed using the Hand icon at the bottom of the window) until **-1** and **-0.5** shows similarly to below



- select the **Text** tool in the **CREATE** pull-down menu
- click on the **Origin** to start creating the text region rectangle. If this point cannot be selected, you may have to move the View to the right and away from the BROWSER region. This is due to a bug in Fusion 360.
- click on the point where you want the **text region rectangle** to extend to. The size of the rectangle isn't that important.

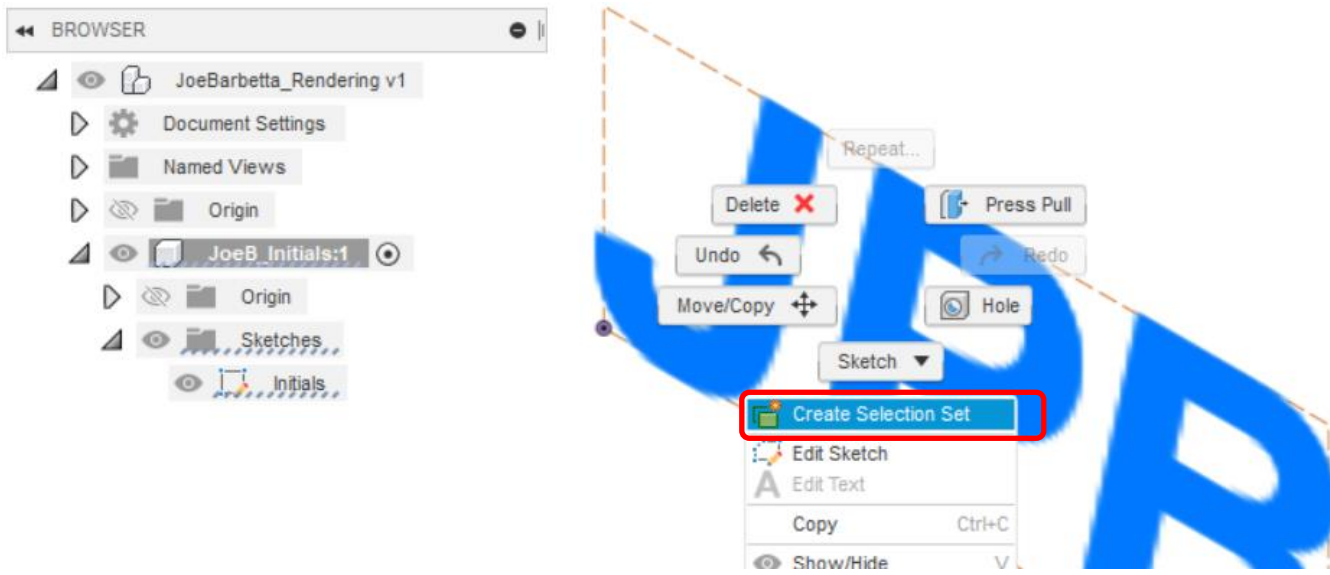


- in the **TEXT** window enter your initials for **Text** and click on the **Center** and **Middle** icons for **Alignment**.
- try different values in the **Height** box to set the desired height. Here **0.5** is used.
- as per personal preference **Bold** and/or **Italics** can be selected for the **Typeface** and the **Font** can be changed from the default of **Arial**. Note that not all fonts can be extruded and if the later Extrude step fails, a new font must be selected. Some fonts may too closely space letters. **There should be some space between letters** as below. If needed adjust the **Character Spacing**.
- click **OK** when done and then **Finish Sketch**

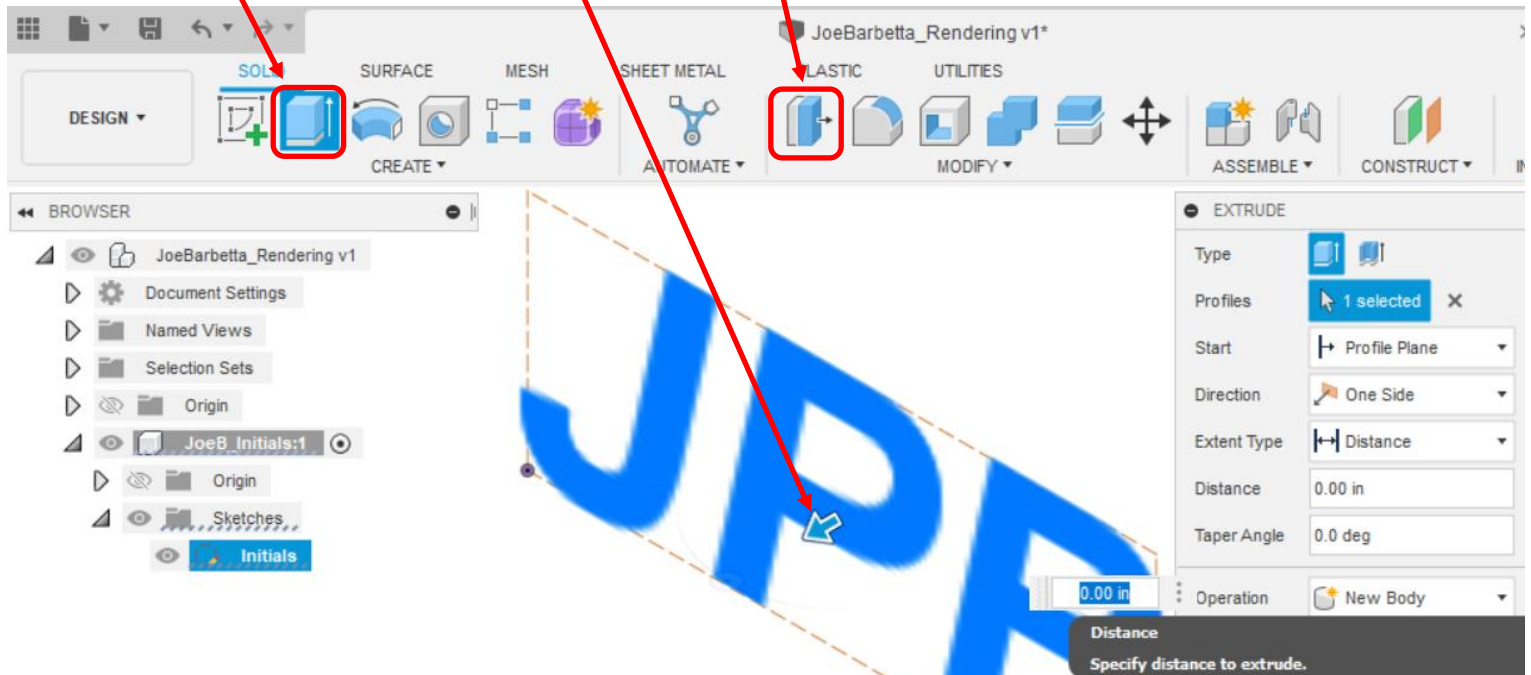


Extruding Text

- right-click on the **text** and select **Create Selection Set**. Nothing will seem to happen, but this is needed for the next Extrude operation.

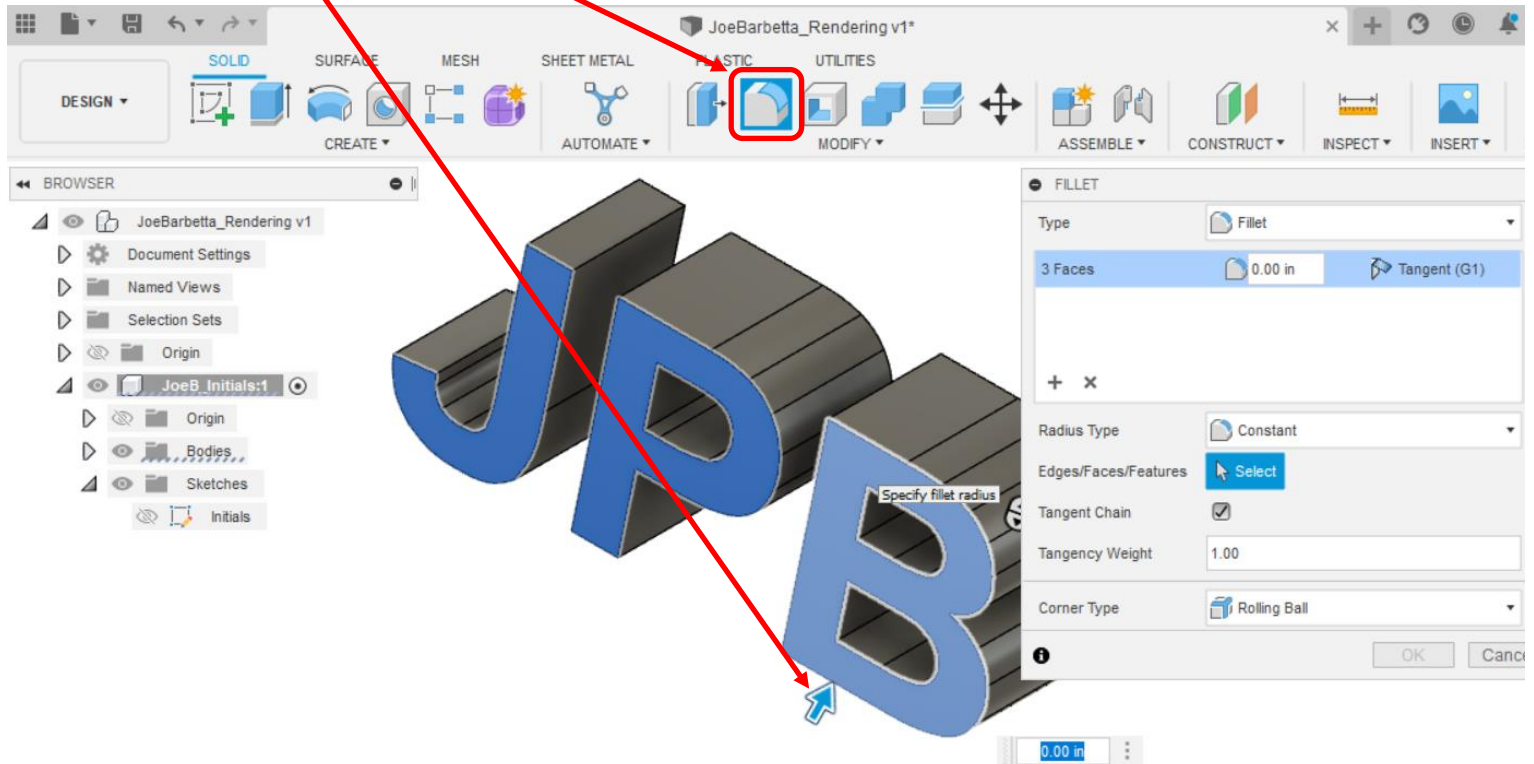


- select the **Extrude** tool and pull on the **blue arrow** until you reach a depth that you think looks good and click **OK**. Note that later on you can change the depth by using the **Press-Pull** tool and clicking on the desired face to be changed. You can also use this to have a different depth for each letter.

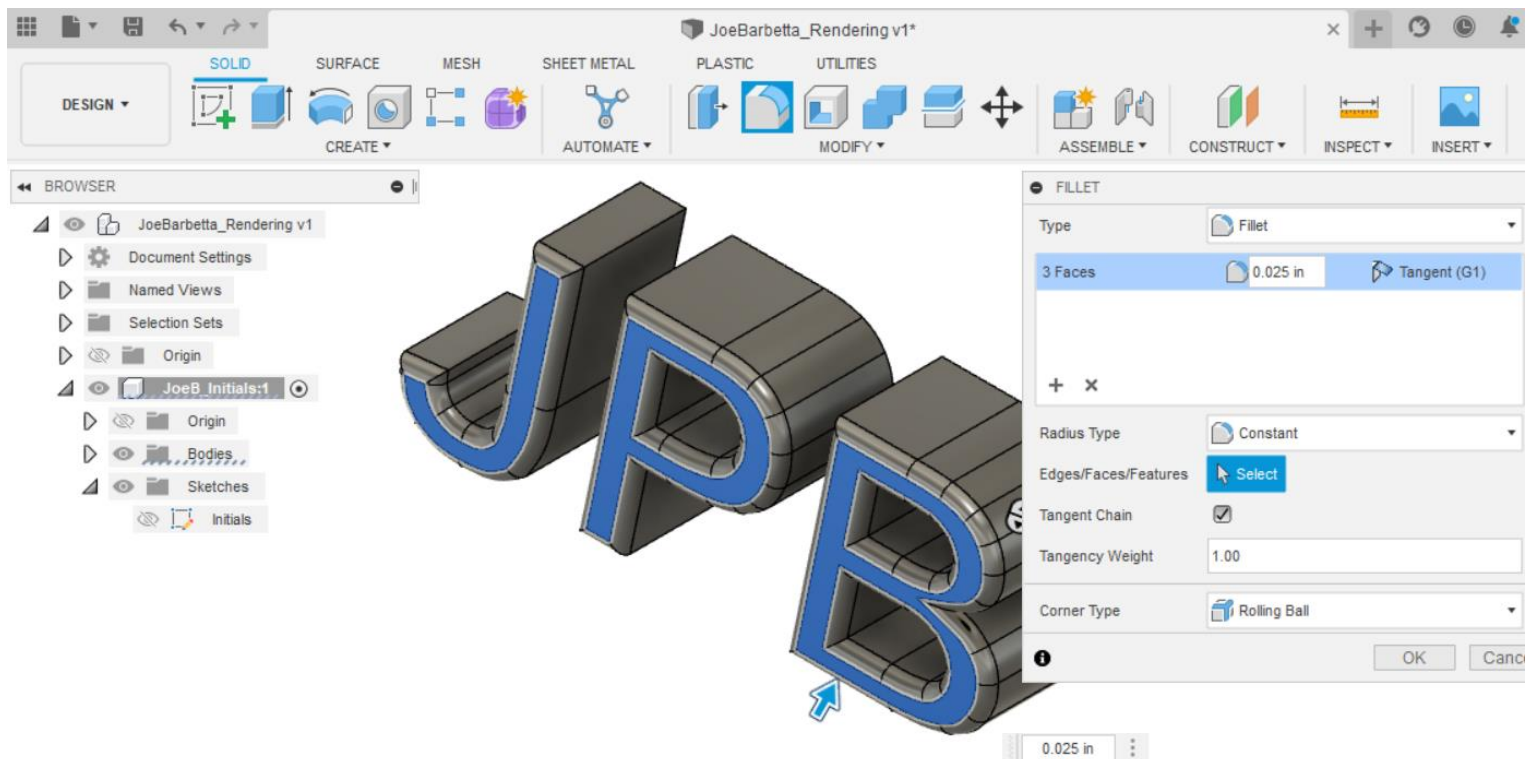


Using the Fillet Tool

- select the **Fillet** tool (pronounced with the **t** and not like fillet of fish) and click on the faces of the letters, which should cause the faces to turn blue. If you don't see the Fillet tool icon, select it from the MODIFY pull-down menu.
- try pulling the **blue arrow** towards the letters slightly or entering a small value, e.g. **0.01** for the fillet radius. It is common to see an error from doing either if the fillet radius is too large. Some fancier fonts may also prevent fillets. As the example shows lower down, try to achieve a visible fillet, which will enhance the rendering effect.

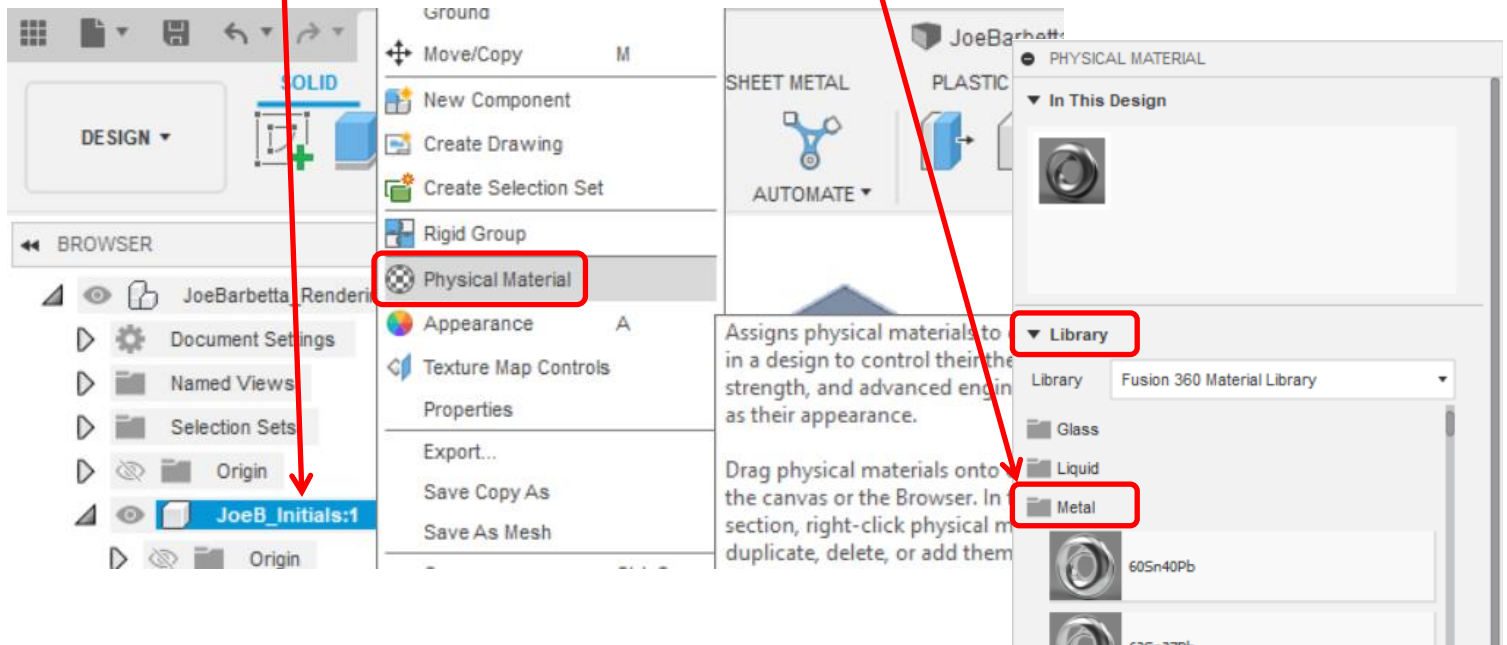


For the size I used for my initials, **Height = 0.5**, a fillet radius of **0.025** worked well.

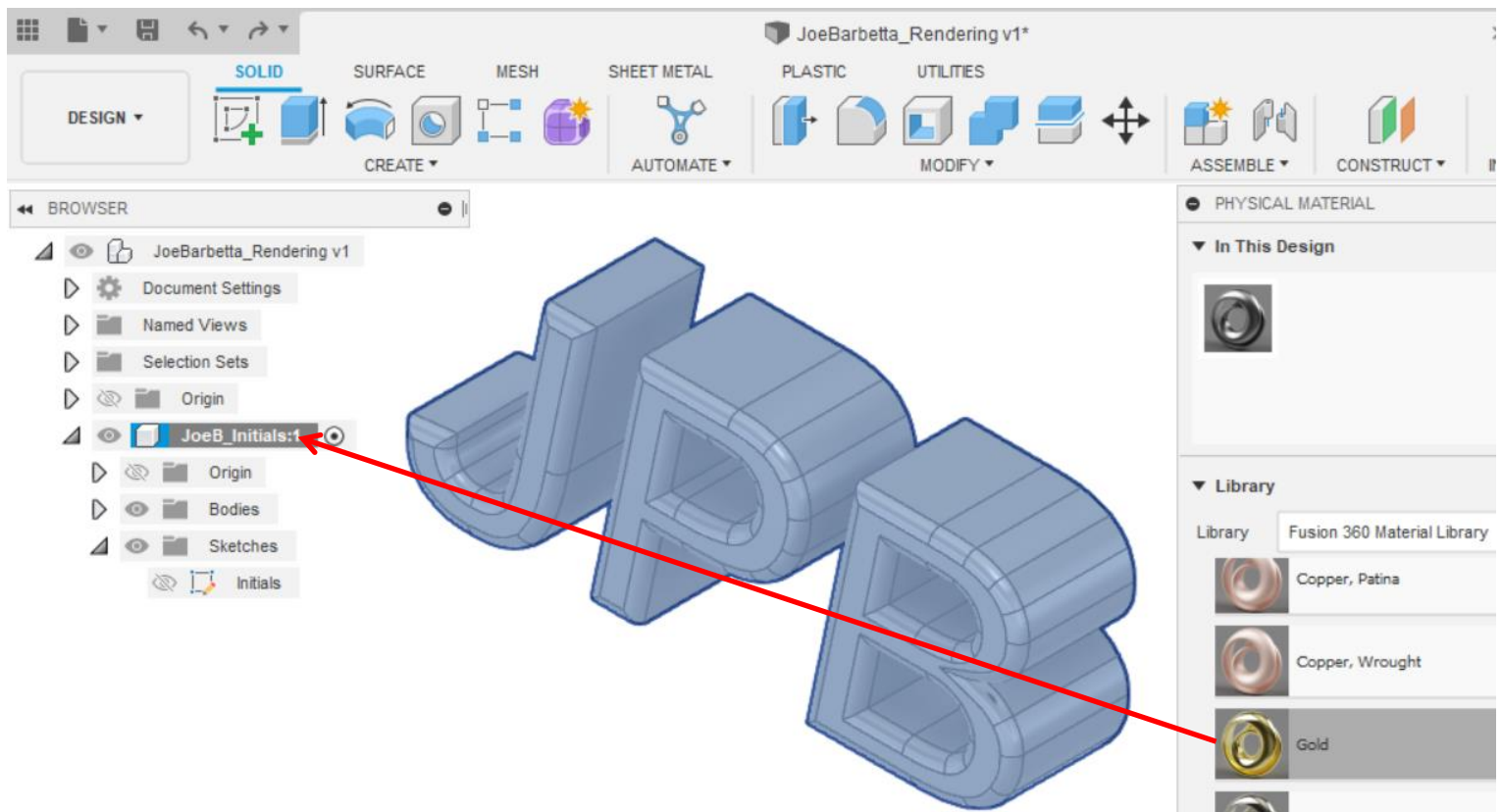


Setting Materials and Colors

- right-click on the **Initials** Component name and select **Physical Material**
- in the **Library** section of the PHYSICAL MATERIAL window open the **Metal** folder. You may have to scroll to find it.

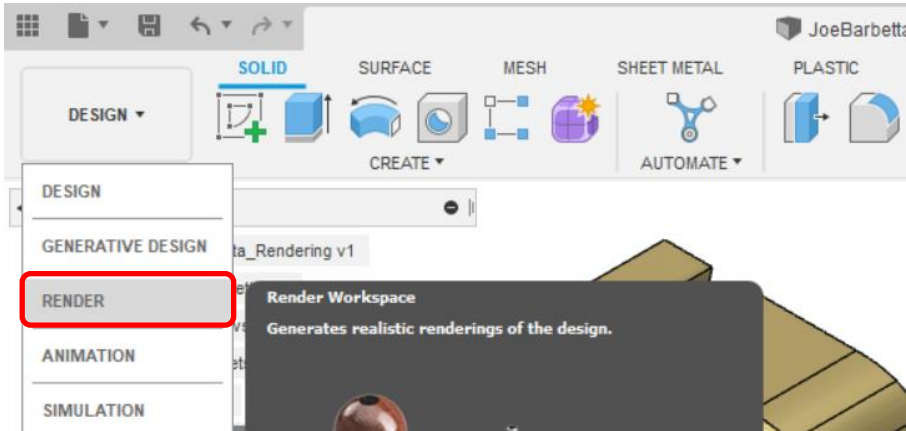


- select a metal from the list and **drag its icon** onto the Component Name.
- have fun trying various materials. There is also a glass folder. You will also be able to change the material in Render mode later on. One can also drag materials onto Bodies as well, if a design is comprised of multiple materials.

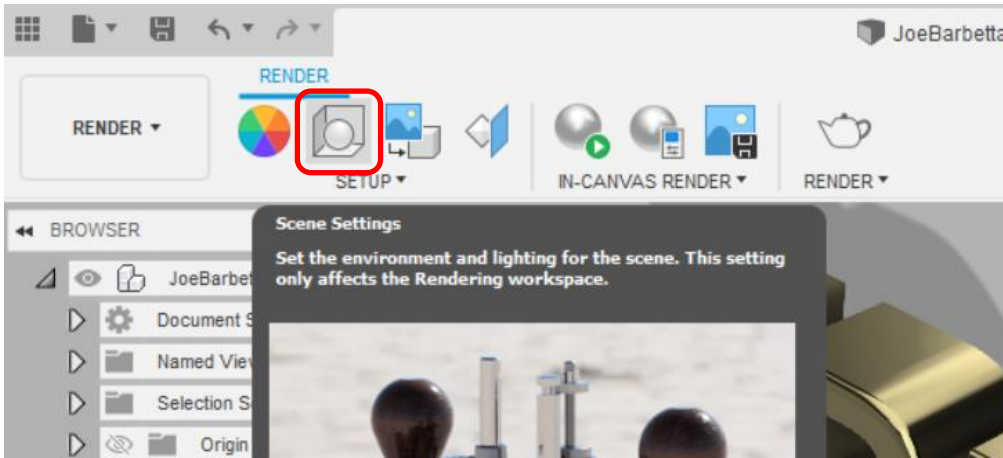


Entering the Render Workspace

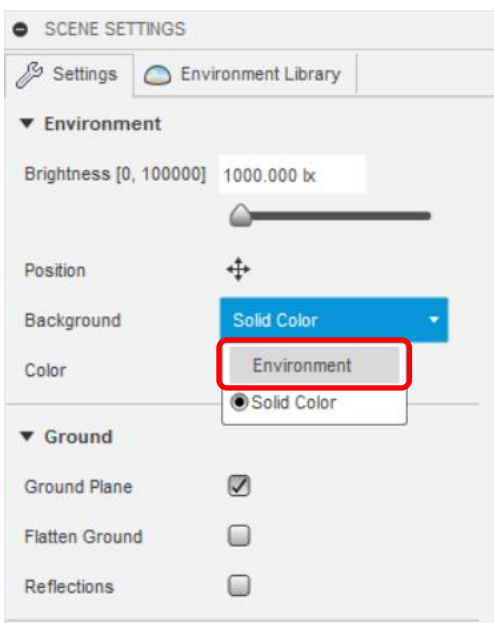
- click on **DESIGN** and select **RENDER**



- click on the **Scene Settings** tool.

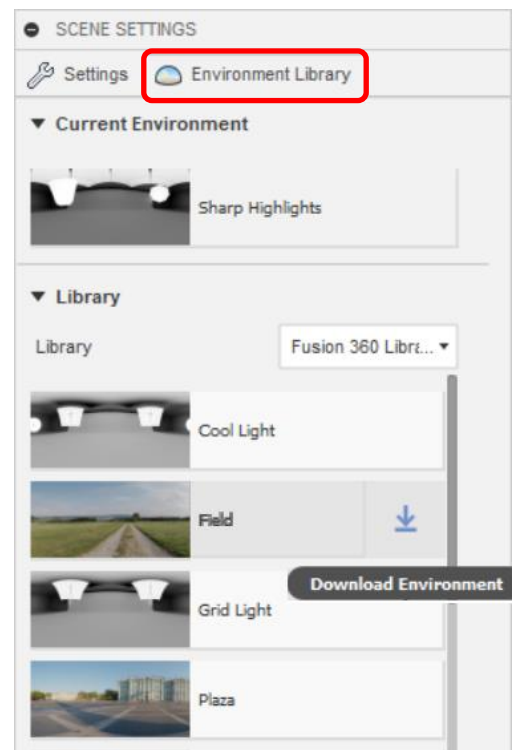


- change the **Background** to **Environment**
- click on the **Environment Library** tab



In the **Library** section, scroll down to select an Environment. If it is one that hasn't been used on your computer yet, the **Download** icon must be clicked first.

Double-click on the Environment image to select it.



- click on the **In-canvas Render** icon, which will start the rendering algorithms. Note that Progress bar at the bottom right. The Fusion 360 rendering engine will run through rendering iterations. When the blue progress bar reaches Excellent, the rendering is complete.

At any time **zooming, rotating, or panning the view** can be done. The rendering will be automatically restarted in each case.

As shown in the earlier Setting Materials and Colors section, the same can be done in the Render workspace.

One has to switch back to the DESIGN workspace to adjust letter depth or filleting.

