

FIT1033

Foundation of 3D

Assignment 3: Crafting a 3D Diorama

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RESEARCH PROGRESS(INSPIRATION)

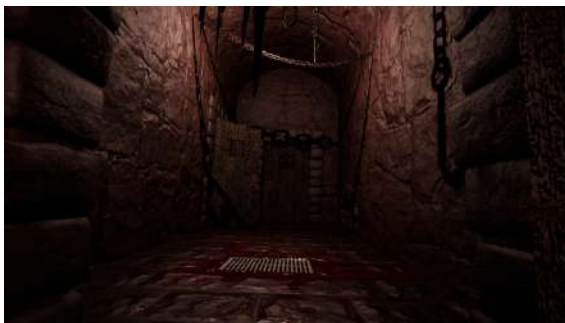
1. Overall concept



[900 × 675](#)



[1,280 × 752](#)



[1,200 × 675](#)

The initial inspiration of my stage was Dynasty, which needed to model out some cloth. However I was concerned about the difficulty of the cloth. Therefore after much consideration, i think it's wiser to change my concept, which is a prison cell.

I later alter my concept a bit to a torture room instead.

2. Torture equipments



[1,200 × 675](#)



shutterstock.com · 1835746864

[390 × 280](#)



[1,024 × 768](#)



[1,300 × 1,265](#)

For the torture equipments, I did some research online to see what equipments are usually used and the below equipments are the one that I found to appear most frequently.

-handcuff

-hammer

-knife

-pliers

-rope

Initially I tried to model the rope based on some tutorials from youtube, but I was not satisfied with the look of it. So I decided to remove it and keep things simple.

3. Other objects



[2,000 × 1,440](#)

-table and chair

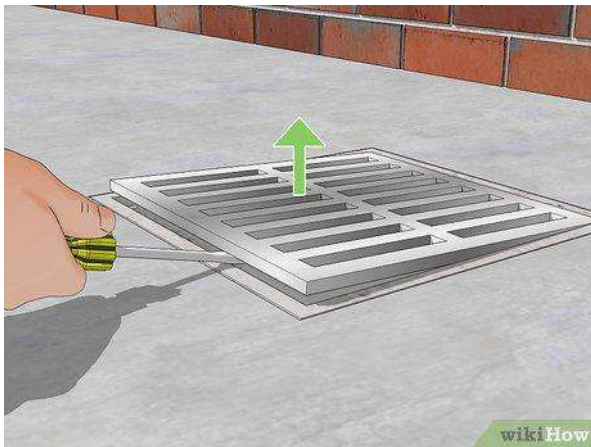
go for wood texture



[720 × 405](#)

-torch

Act as the source of light



[460 × 345](#)

-drain

Where the prisoner escaped to.

4. Stage design and texture

the wall and the floor



[1,619 × 1,080](#)



[1,280 × 720](#)

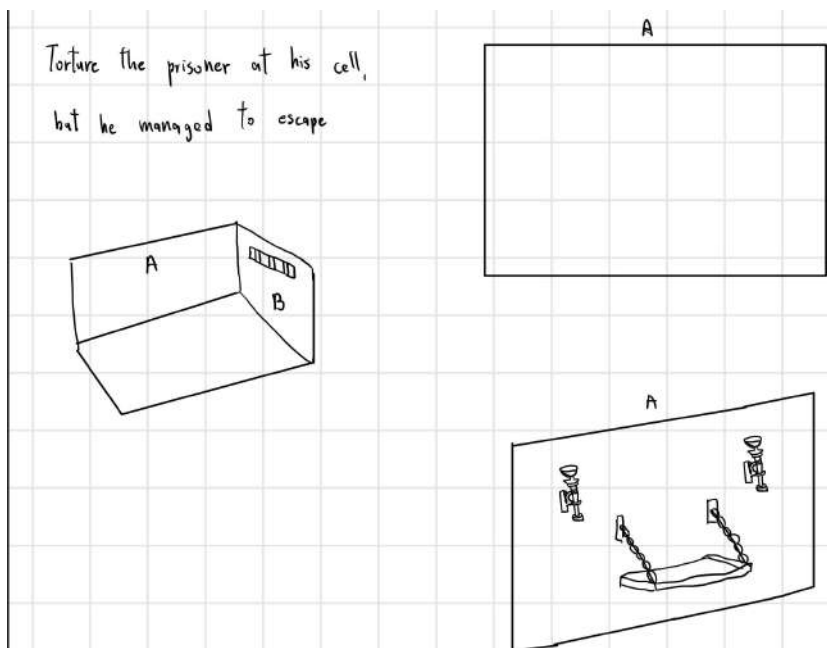
5. Storyline

Prisoner escaped from the torture room using plier to open the handcuff and the knife to open the drain.

-escape place

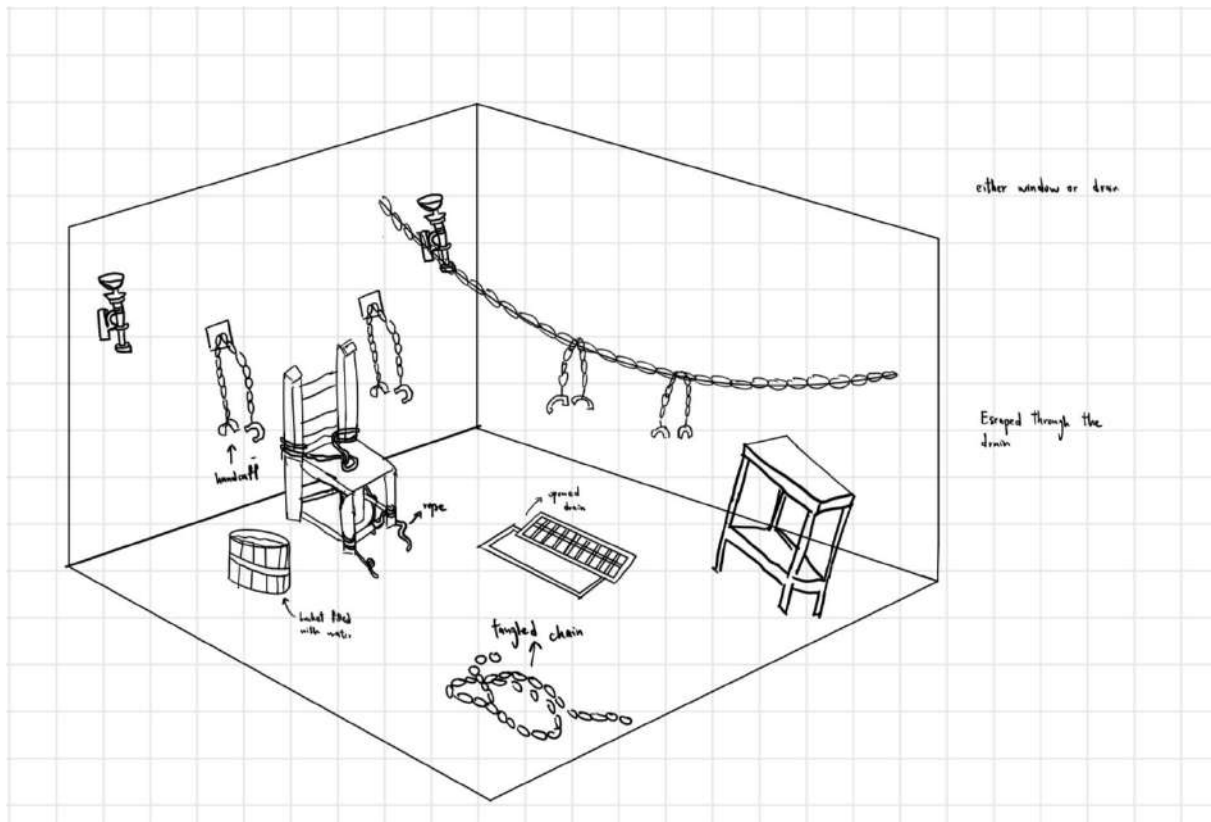
Initial thought was for the prisoner to escape through the window, later on decided to change it to an underground drain instead.

DESIGN(SKETCHING)

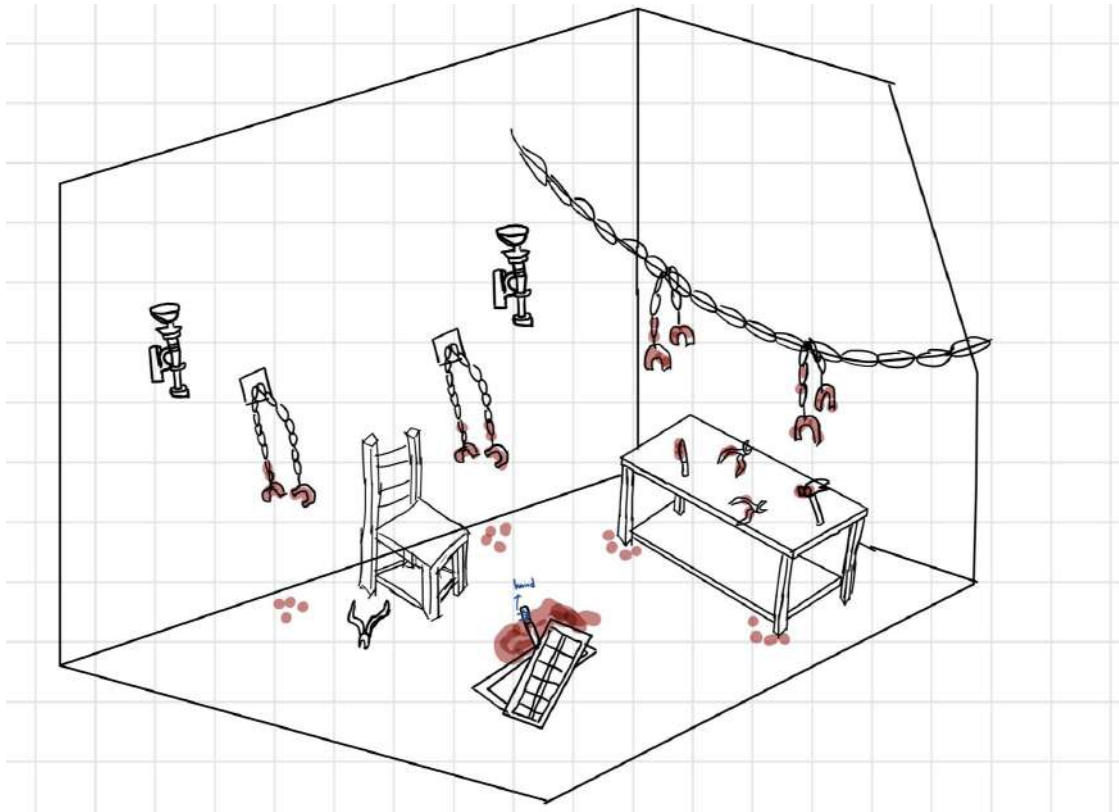


As I mentioned in number 1 of research progress, I had drawn a prison cell. But later on I decided to change it to a old torture room instead.

Then I was thinking of choosing either a window or a drain like I had mentioned in research progress. Turns out the drain suits the scene better.



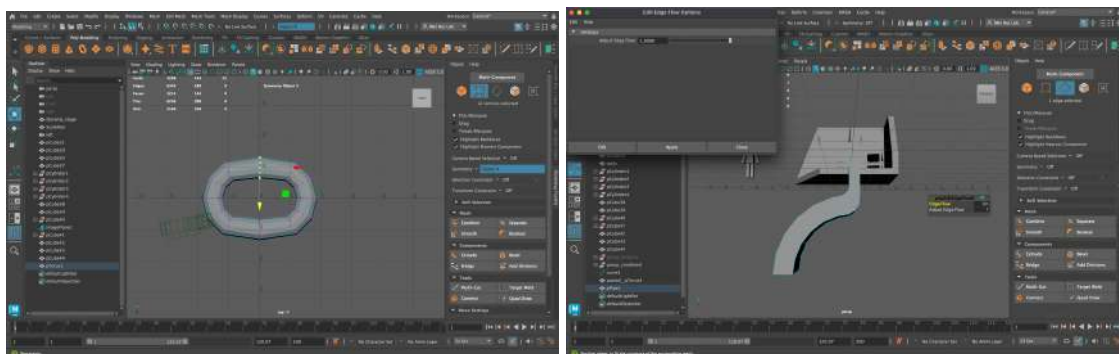
So this is the overall first sketch of my diorama without the torture equipments.

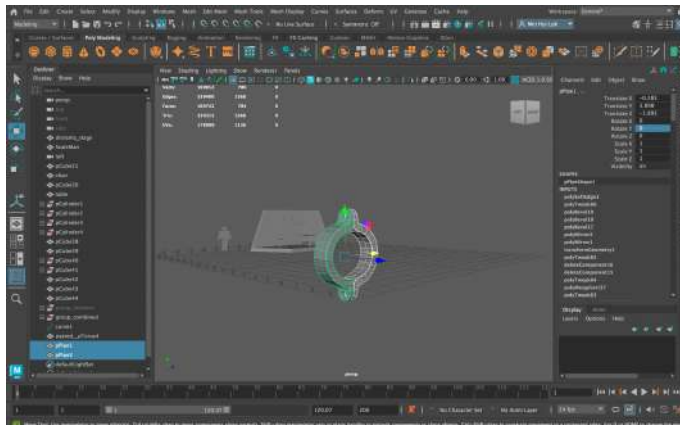
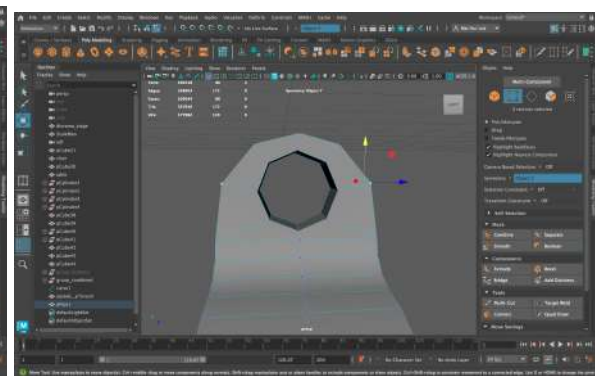
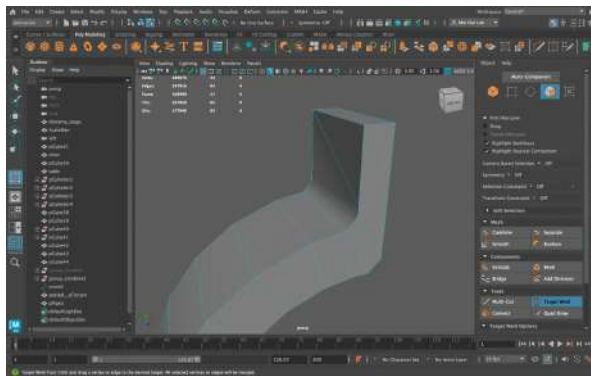


The above sketch is the final sketch of my diorama with some adjustment to the location of the table, removal of the rope, bucket filled with water and tangled chain. Some blood were also added to add up the spookiness

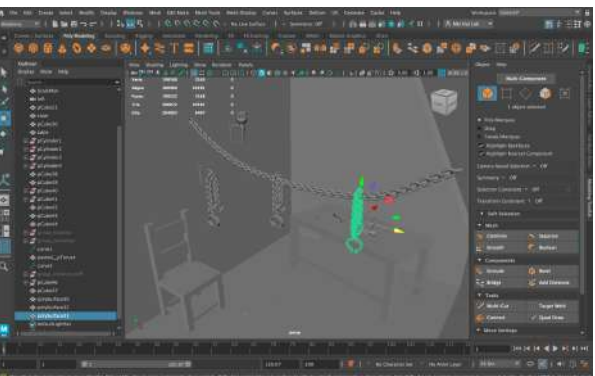
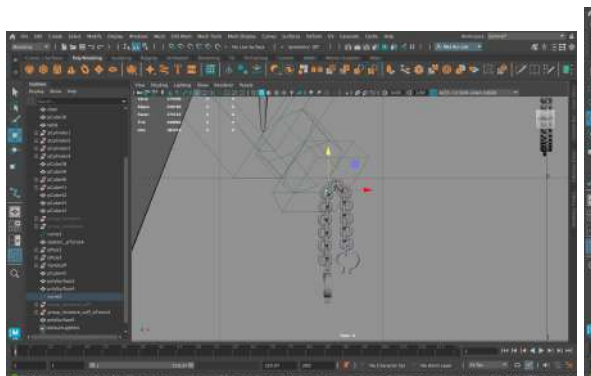
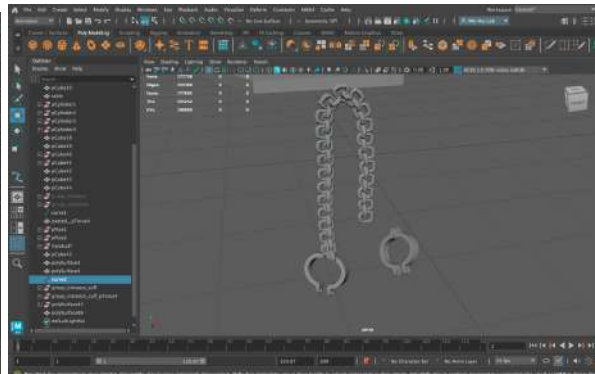
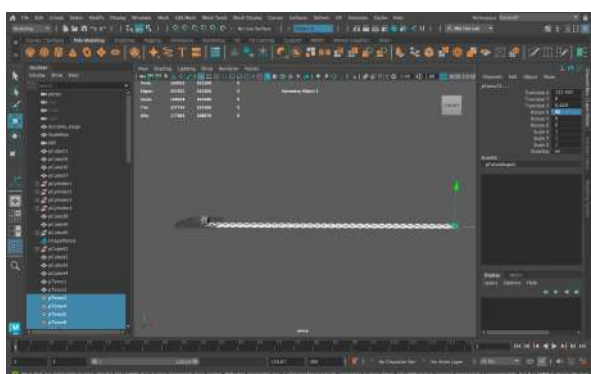
MODELING PROGRESS

- Chain & handcuff





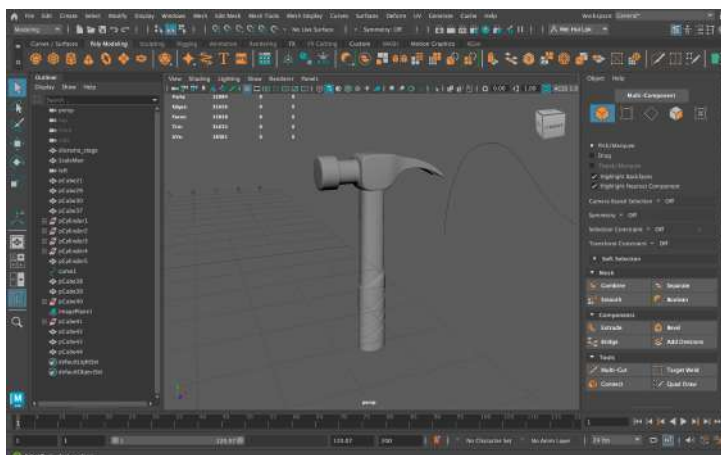
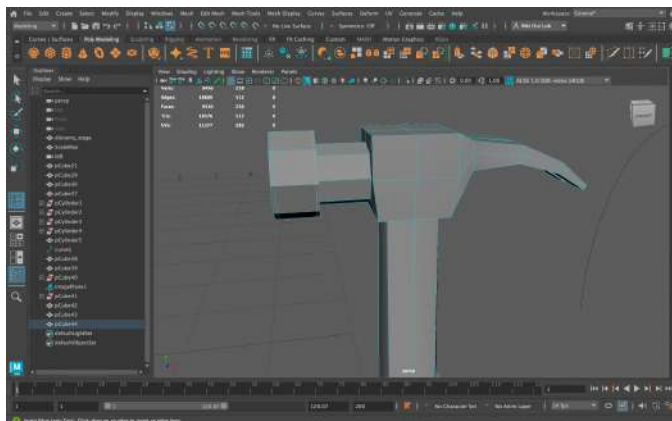
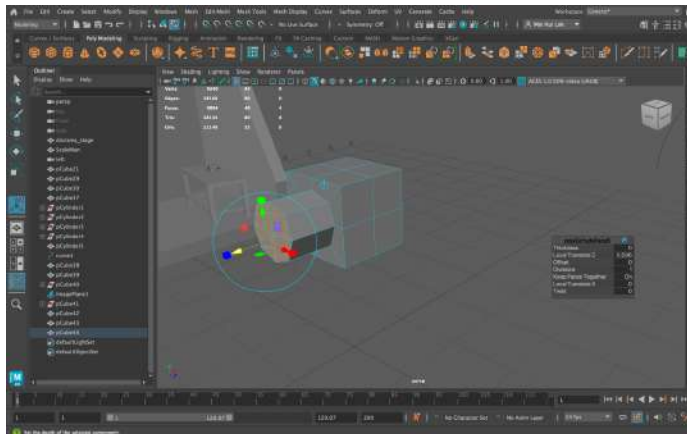
I first designed the handcuff from a torus. After I managed to model one side of the handcuff, i just used duplicate special to make another copy on the opposite side.



For the chain, I first drew a curve , then utilised Curve Warp, which is under the deform tab in the animation toolbar to make the chain follow the curve that I had drawn.

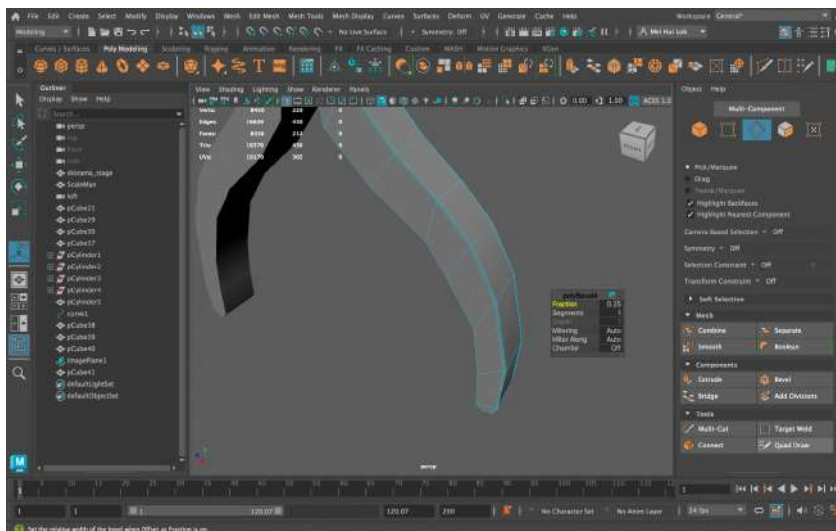
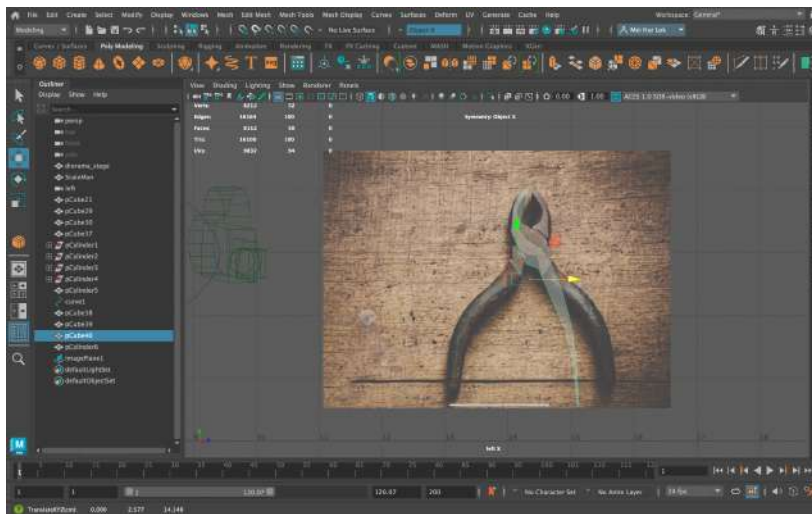
Then I adjusted the vertex of the curve to make it smoother. Same technique is used for the horizontal chain.

- hammer



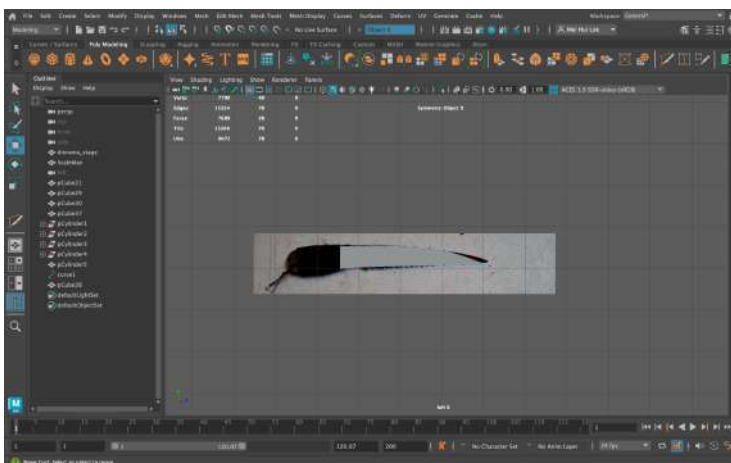
Extrude one side of the cube to be the face and throat, then extrude another side as the claw. Edge loop was added to the part where it doesn't need to be too smooth.

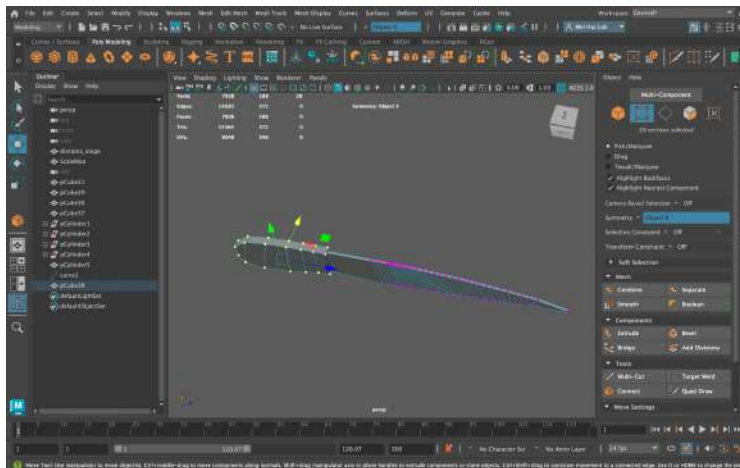
- plier



An image was imported as the image plane in maya to guide the shape of the plier.

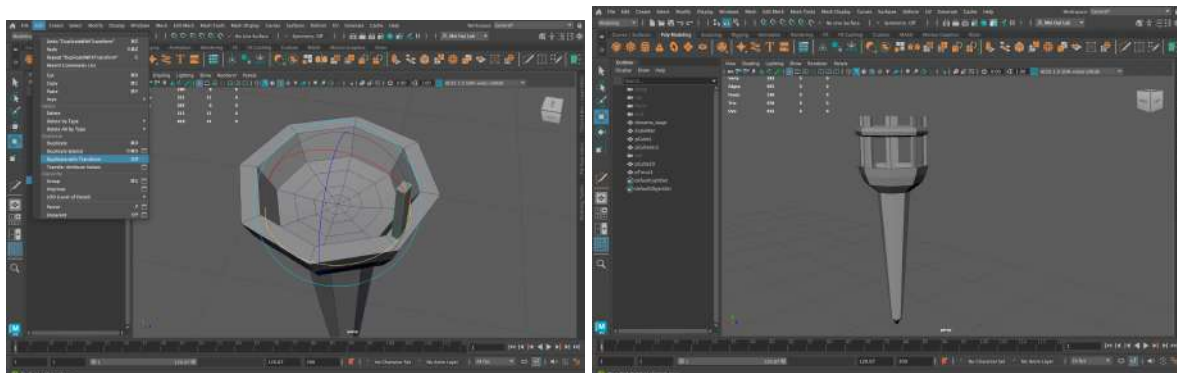
- Knife



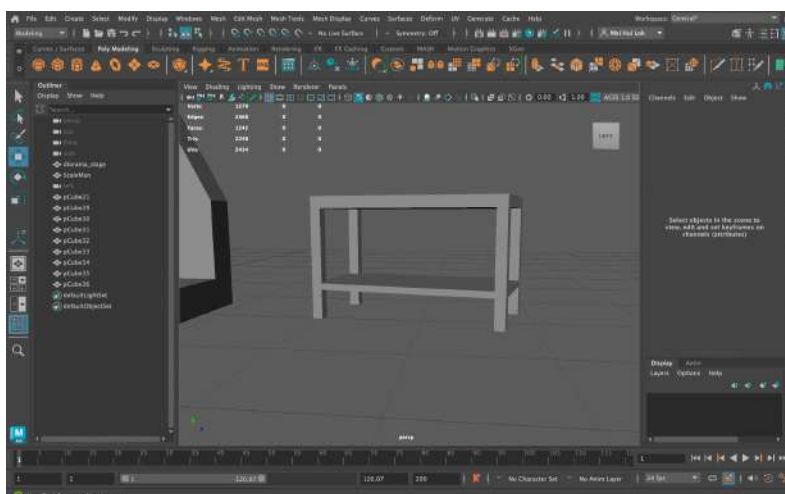


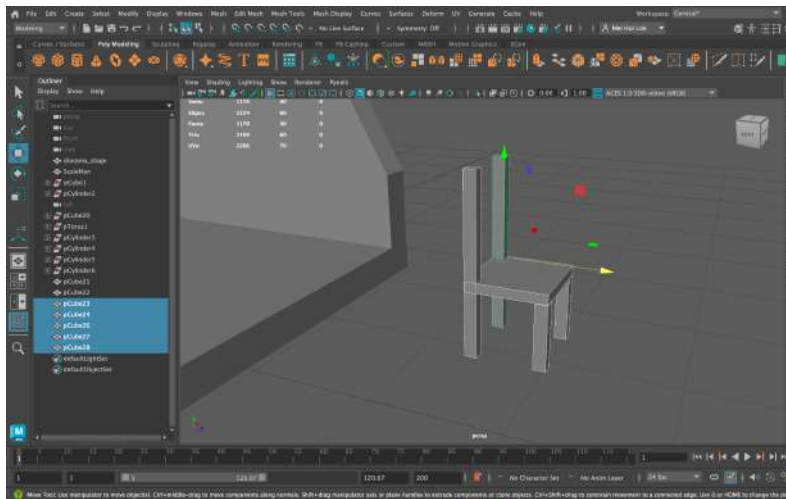
Same for the knife, an image is imported as a guideline in modelling the shape of the knife, especially the blade part.

- Torch

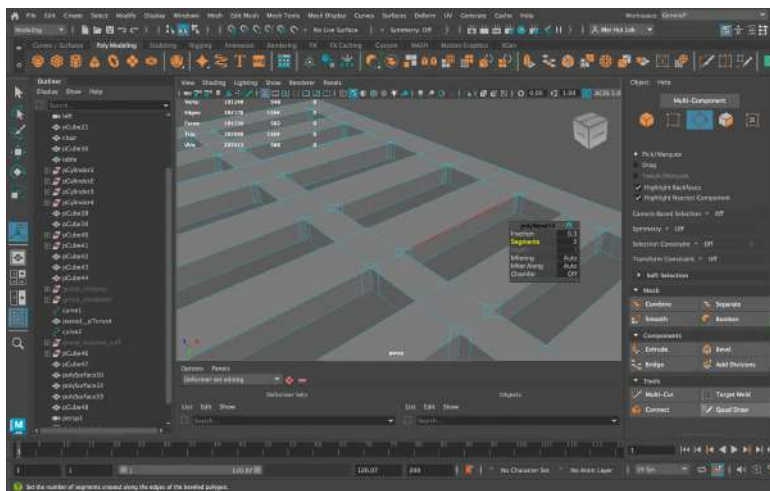


- Table & chair



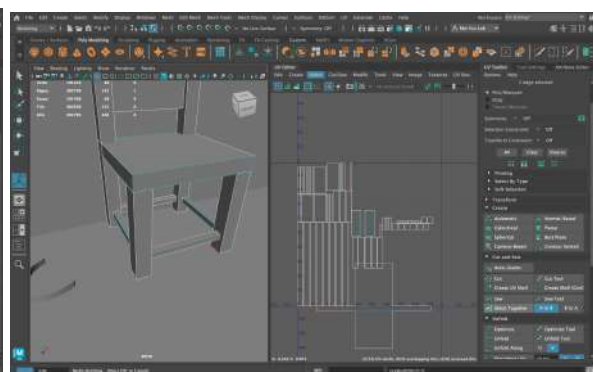
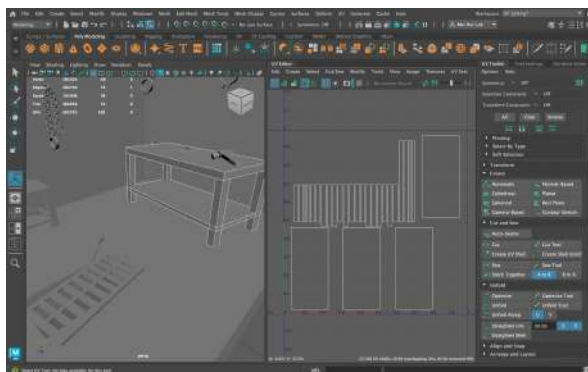


- Drain

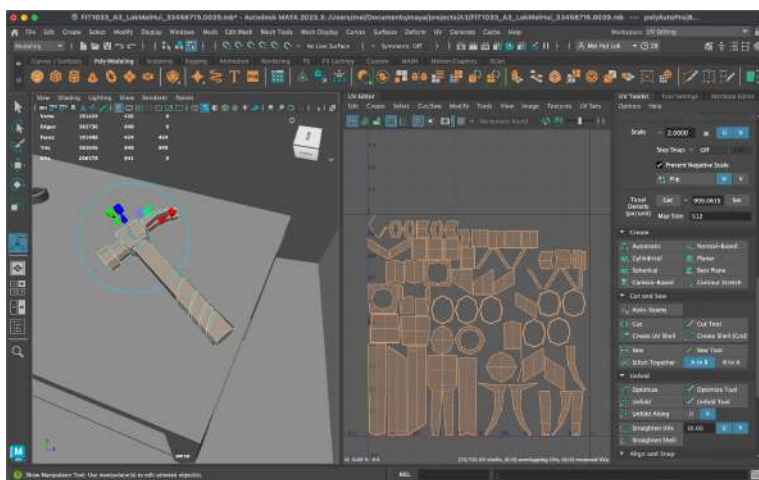
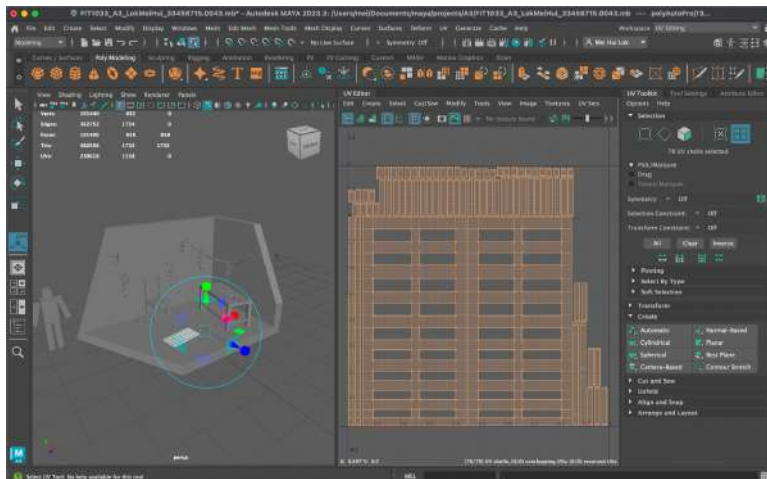
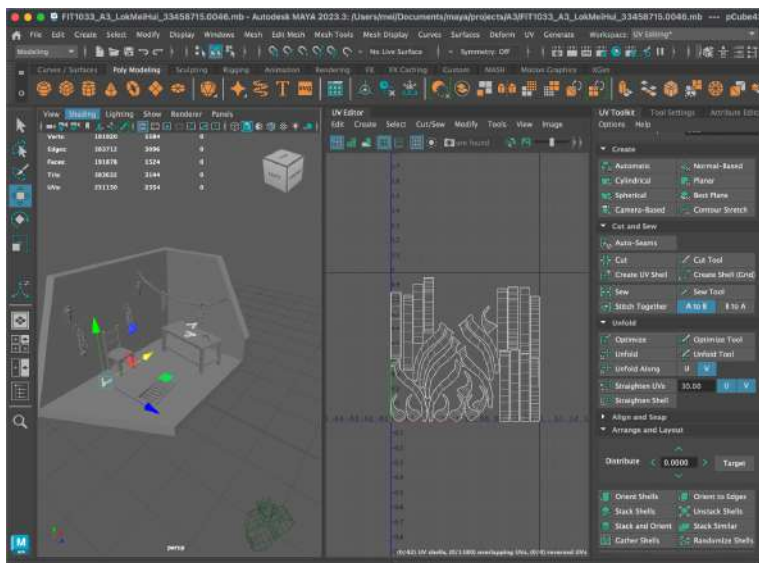


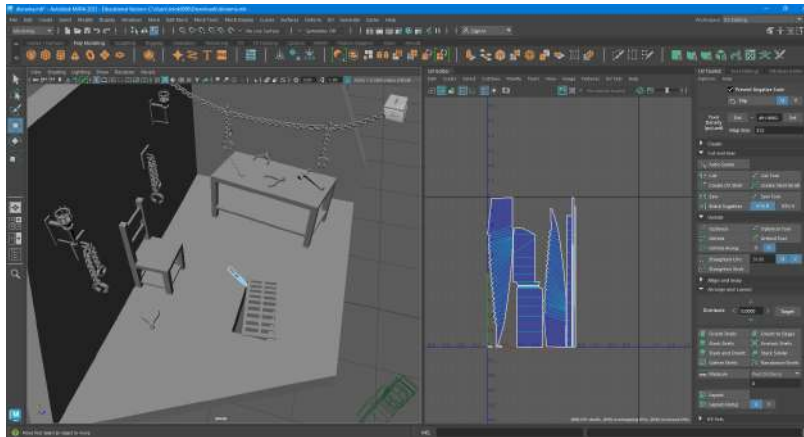
Bevel the edges so that the drain is not too smooth.

UV EDITING



I put both the table and chair in one mesh as they used the same texture.

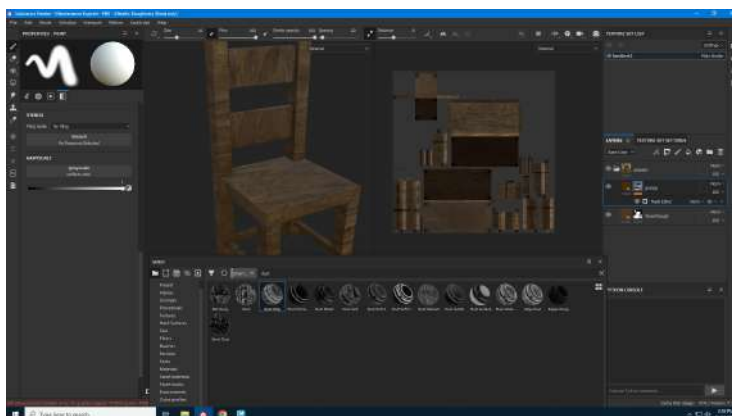
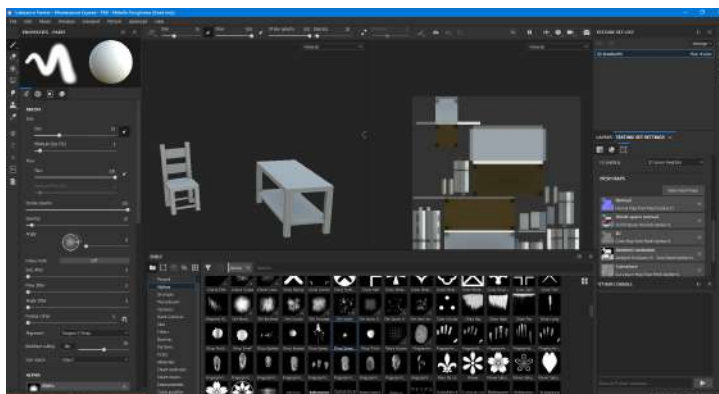


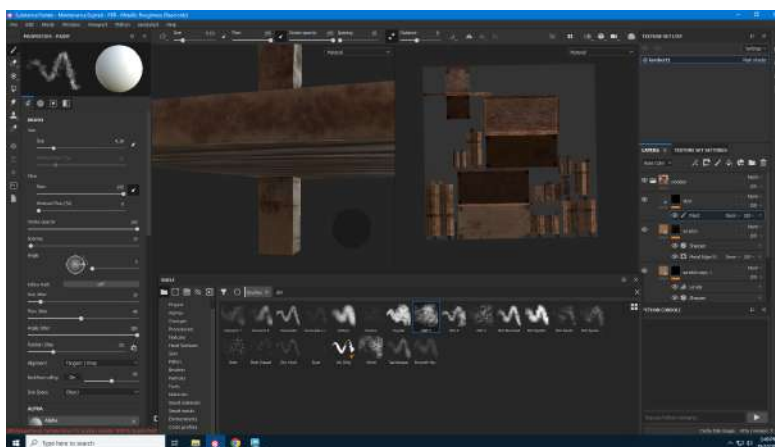
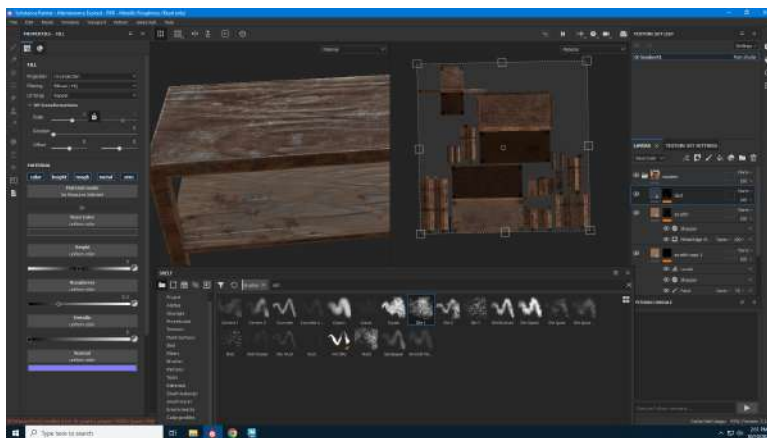
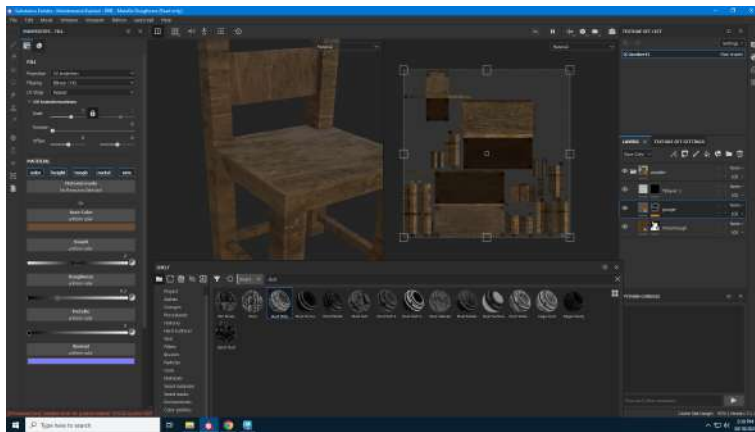


I realise that I only need to uv editing a single item and just duplicate it. Thus, I had deleted the knife on the ground, duplicated the one on the table and just rotated and moved the new knife to the ground.

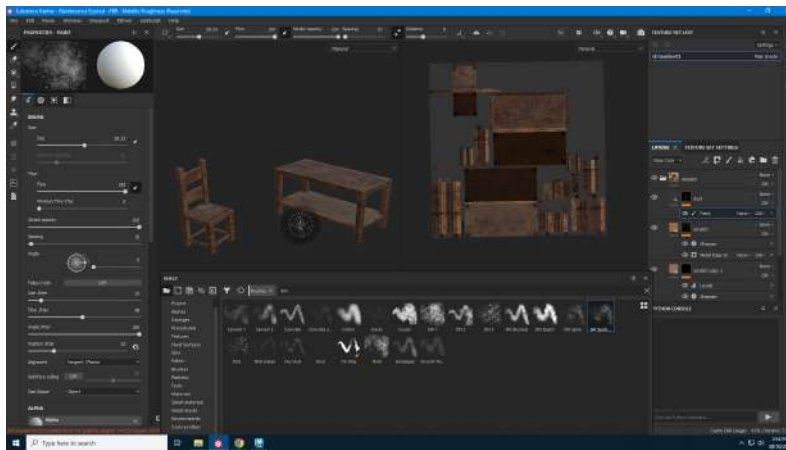
Substance Painter

- Chair and table





I want the chair and table to have an old woody texture. So some scratches and dust were added as well using paint to indicate that they are aged.

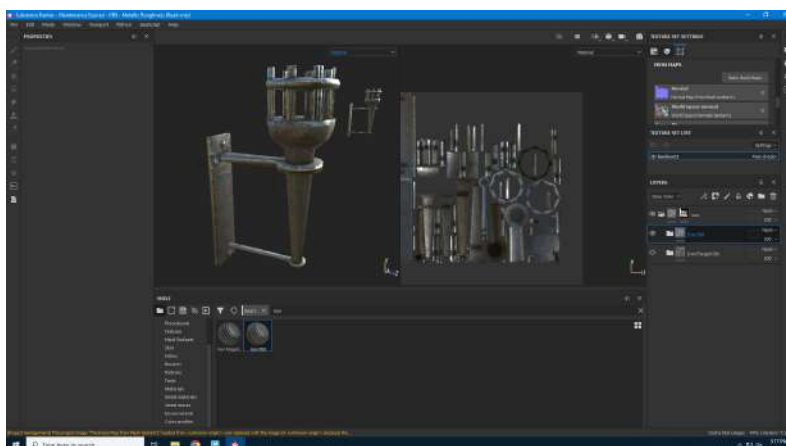


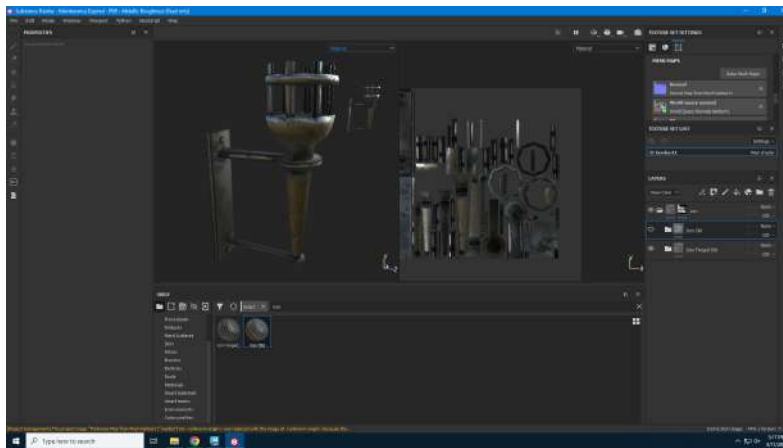
This is the final model for the table and chair.

- Torch

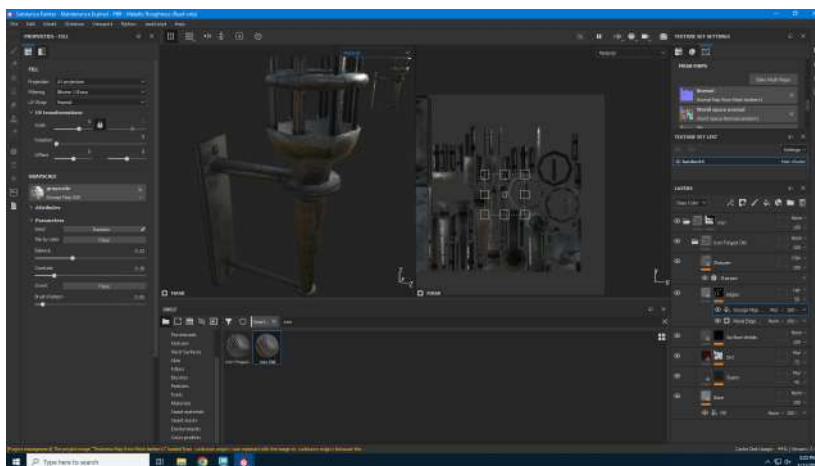


600 × 600



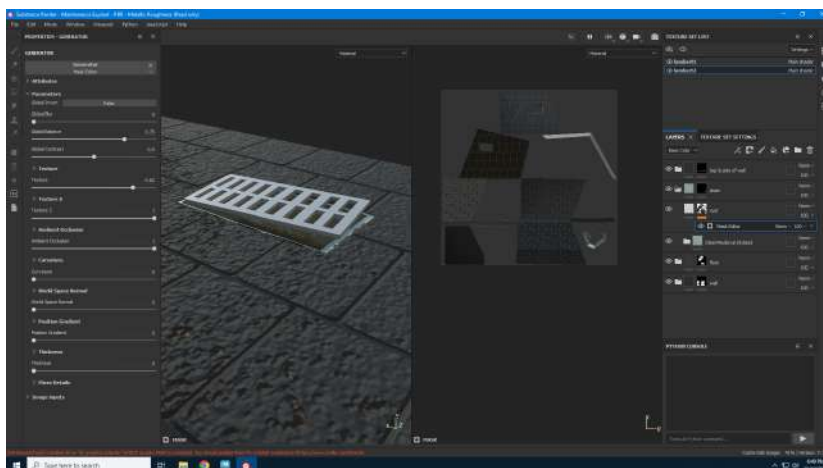


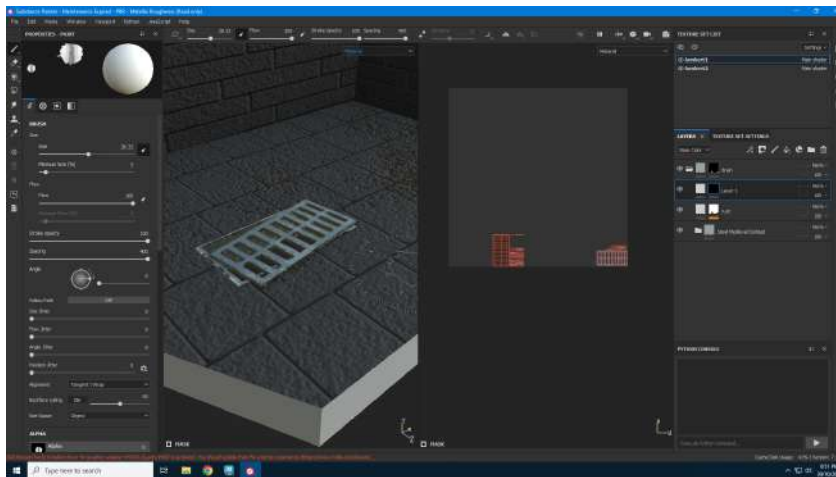
I was thinking of which smart material to use. Turns out I prefer the iron forged old more.



Then I edited the grunge map's balance,contrast and adjusted the dirt level.

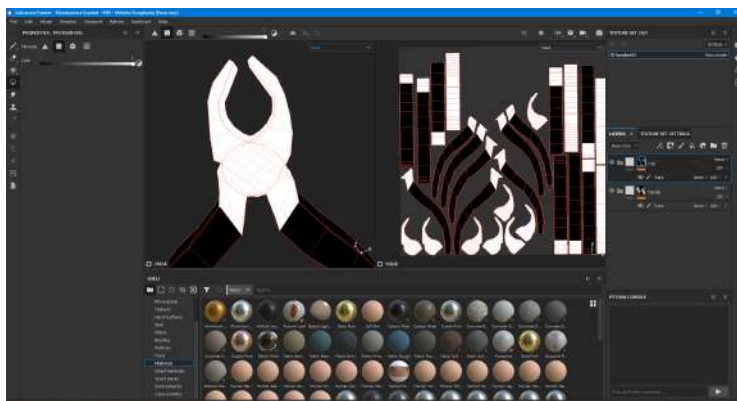
- Drain



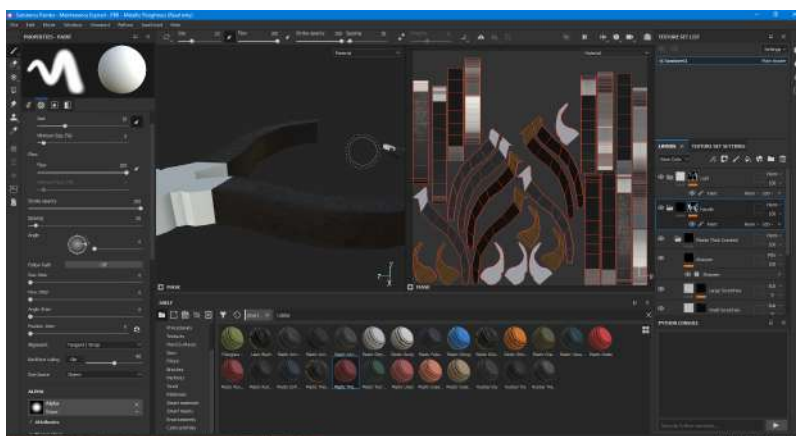


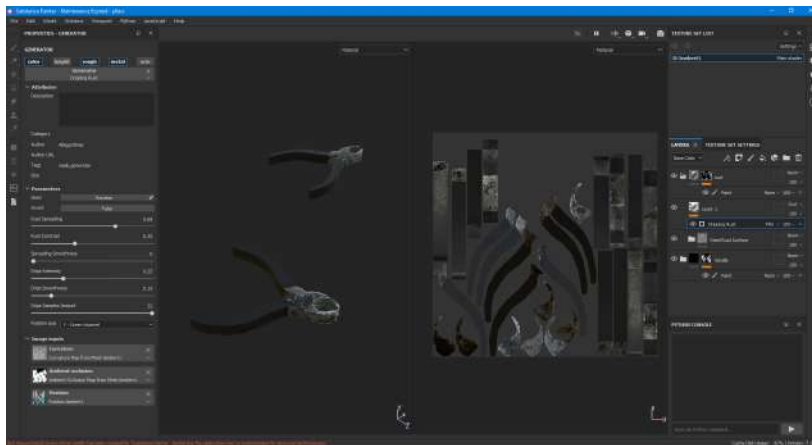
A smart material, namely Steel Medieval Stylized is applied onto the drain. A new fill with a smart mask is used to indicate the steel being rust.

- Plier



I'm just applying a black mask and selecting the steel part of the plier.

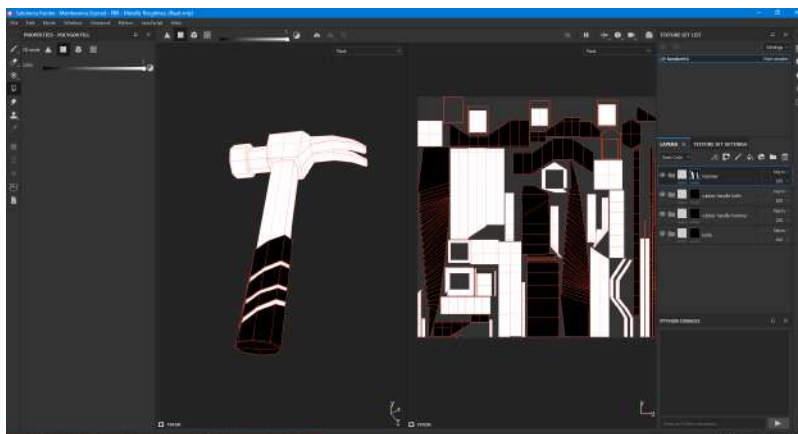




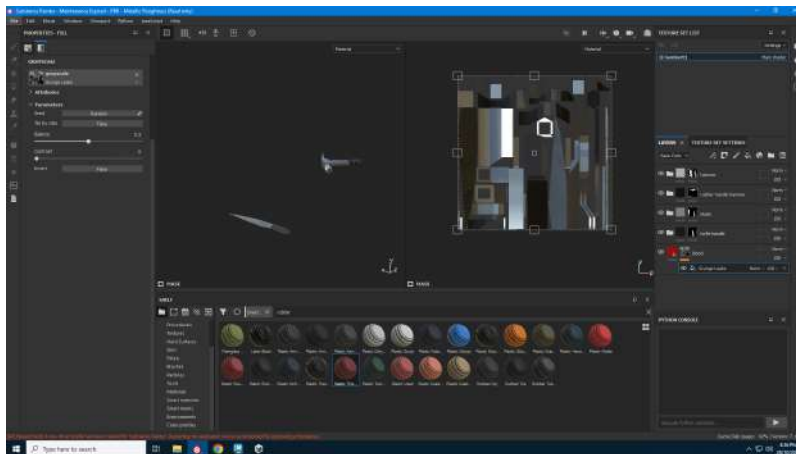
1,000 × 667

For the handle, I went for a plastic texture with some crack to show that this plier has been used many times in the past. Then some rust textures were added to the steel part to show that it was bought ages ago. I had referred to the above image while designing the texture.

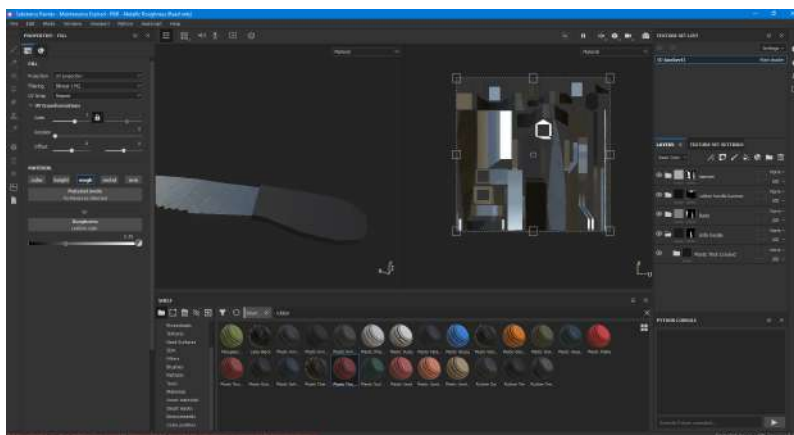
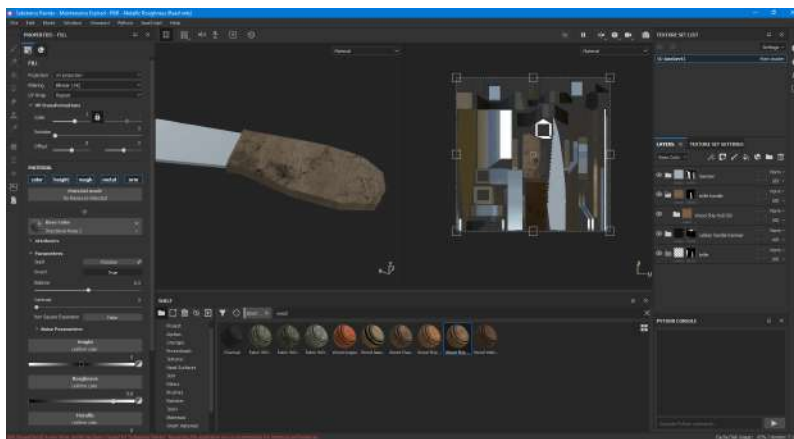
- Hammer & knife



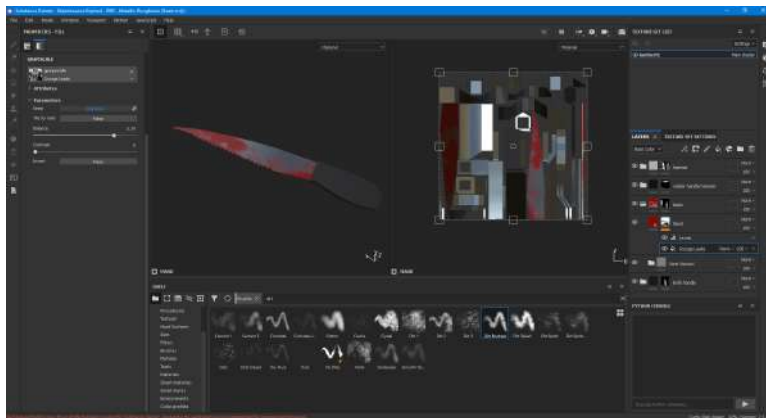
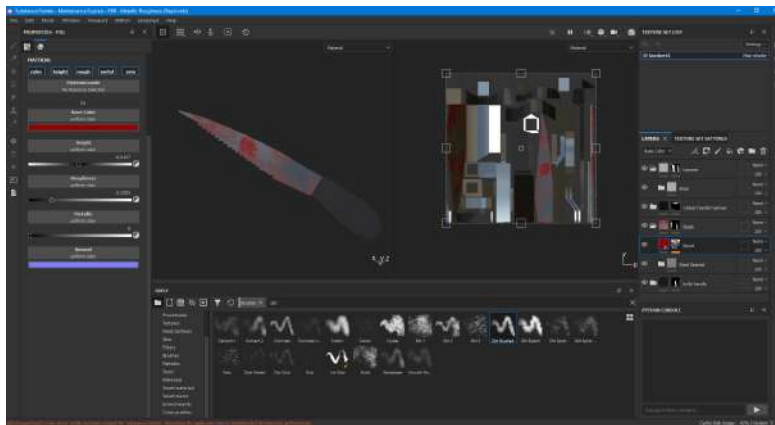
Here, I'm just applying a black mask to the hammer folder so that the hammer and its handle will have different textures.



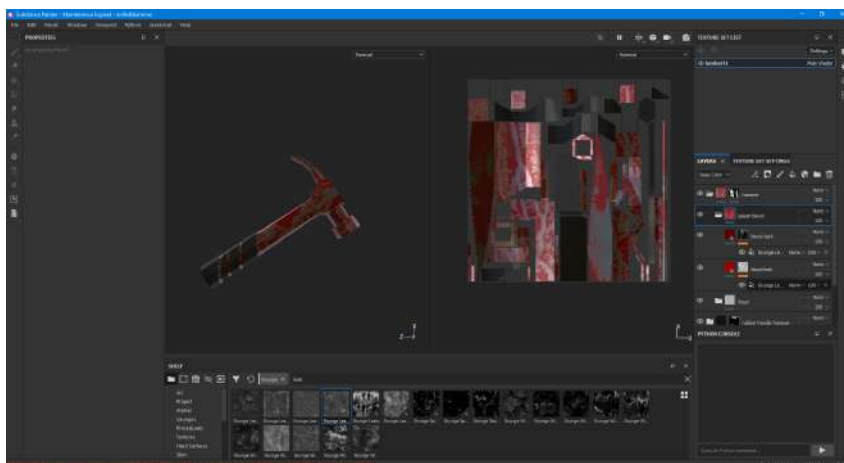
For the hammer, steel smart material is used and a rubber texture is applied to the handle.



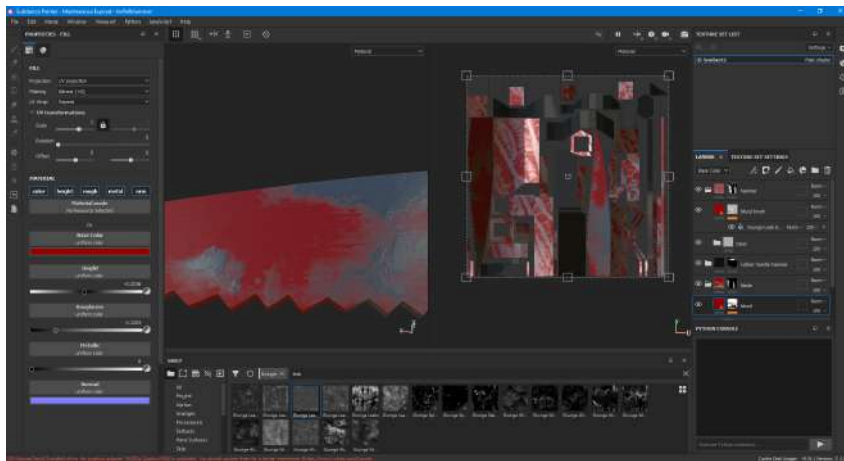
For the handle of the knife, I was thinking of going for a wood or plastic texture, therefore I went apply the smart material to see how it will look. Turns out the plastic texture looks way better.



I had created a new folder for the blood texture and moved that folder under the blade folder so that the blood texture will only be applied on the blade. I also adjust the seed for the blood to focus more on the tip of the blade.

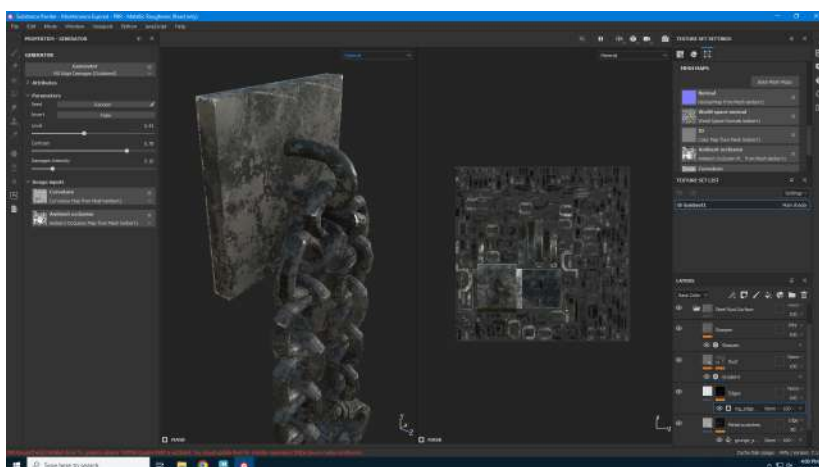
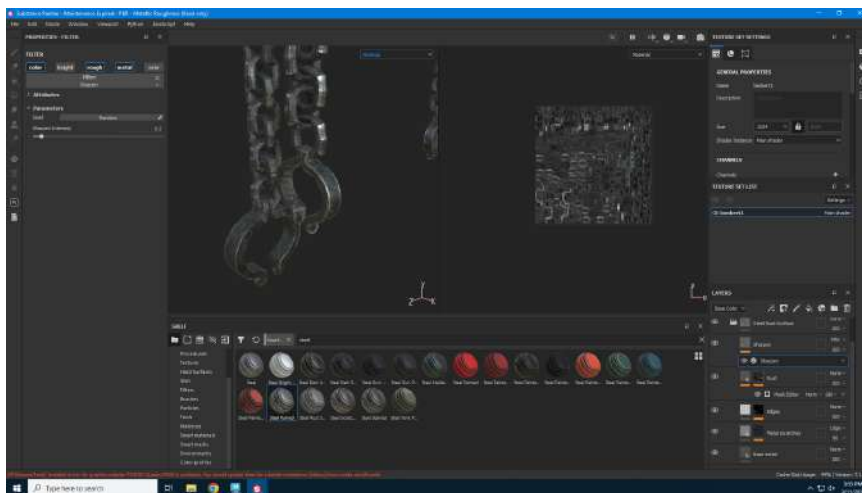


A new folder is created to store the leaked blood that will appear on the hammer.



Adjusted the colour of the blood to be darker.

- Handcuff



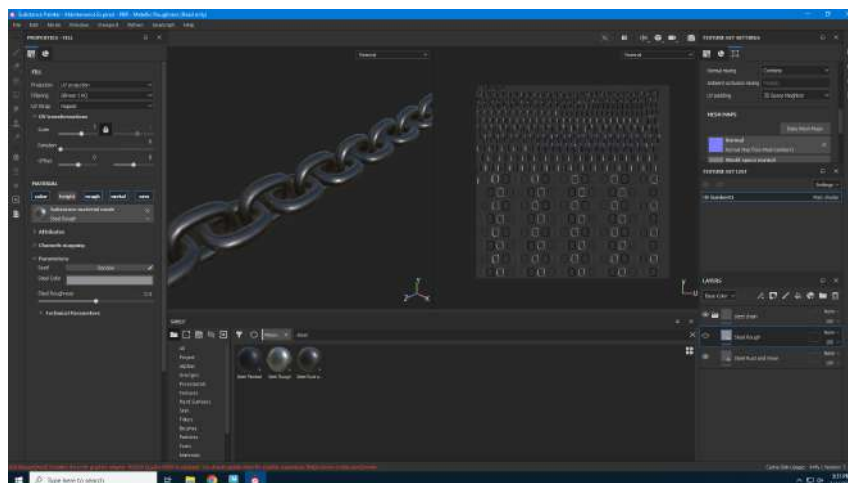
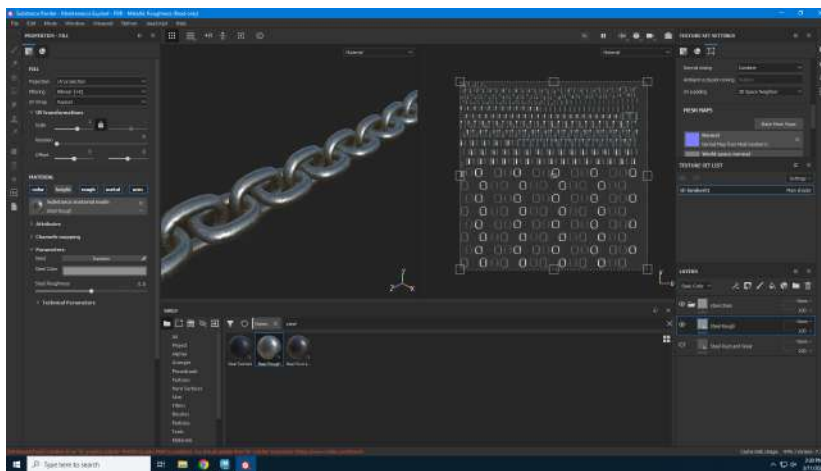
Adjusted the attribute of the smart material.

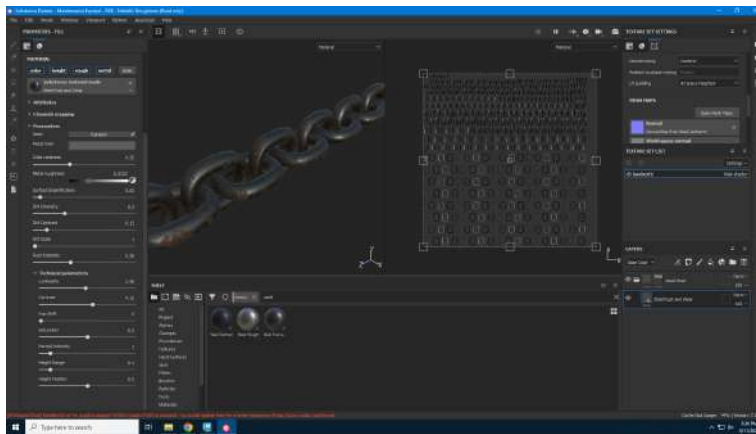
- Chain



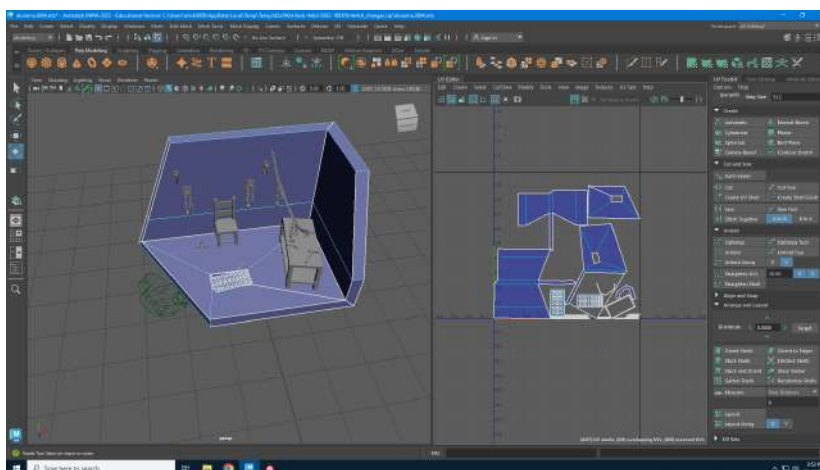
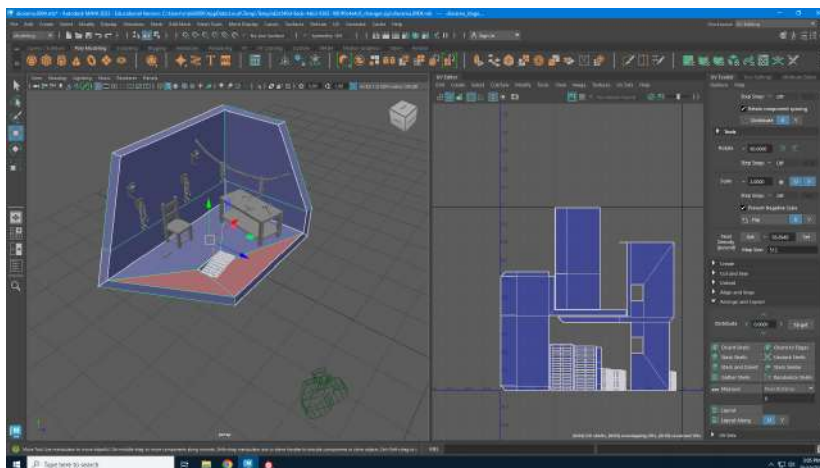
[2,048 × 2,048](#)

The chain will have a steel texture, so either material steel rough or steel rust and wear.

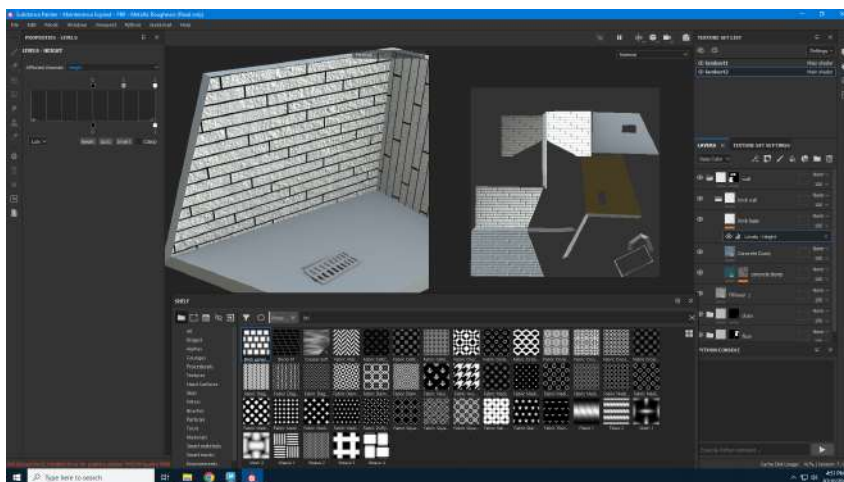
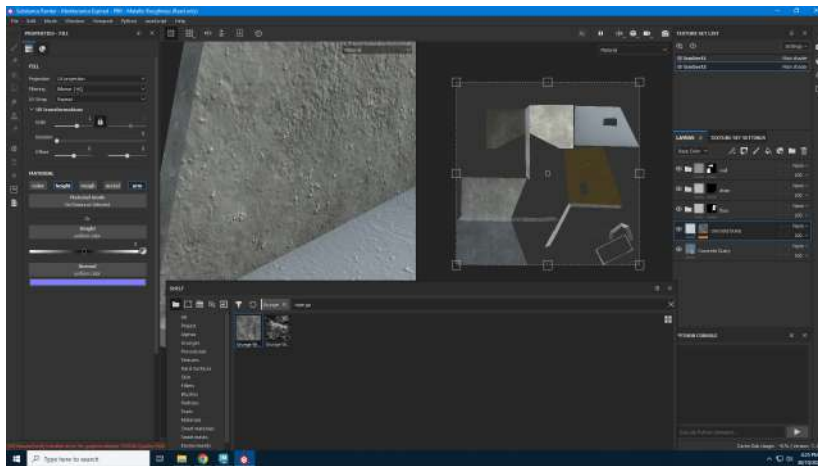




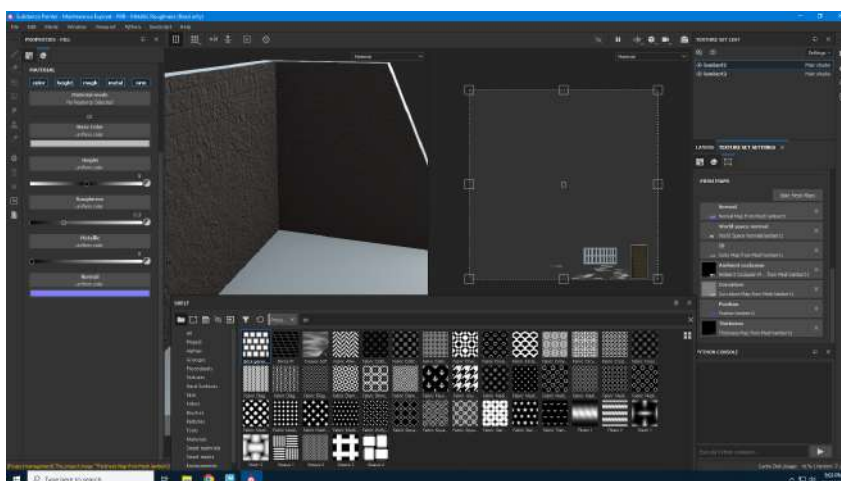
- Wall & Floor



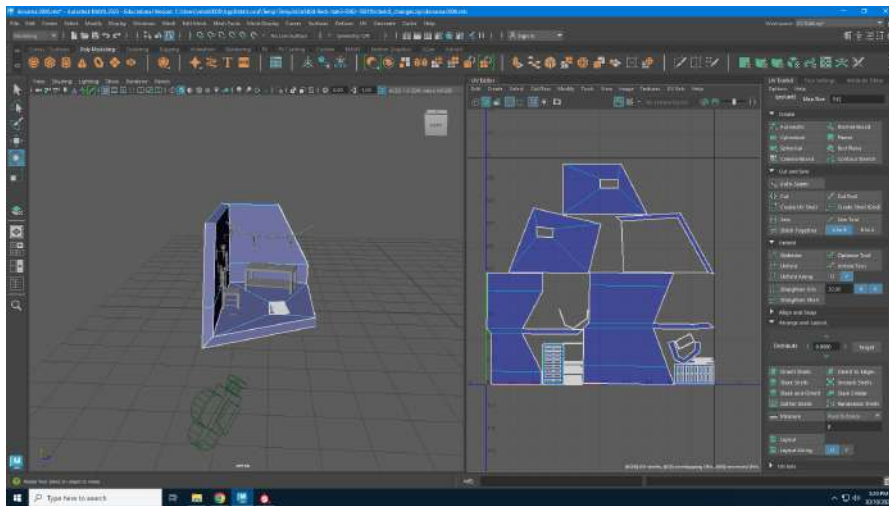
For the floor there were some issues after baking the textures in substance and it was due to the uv editing. So I went and recreated the uv shell and configured the new file, then baked the textures again.



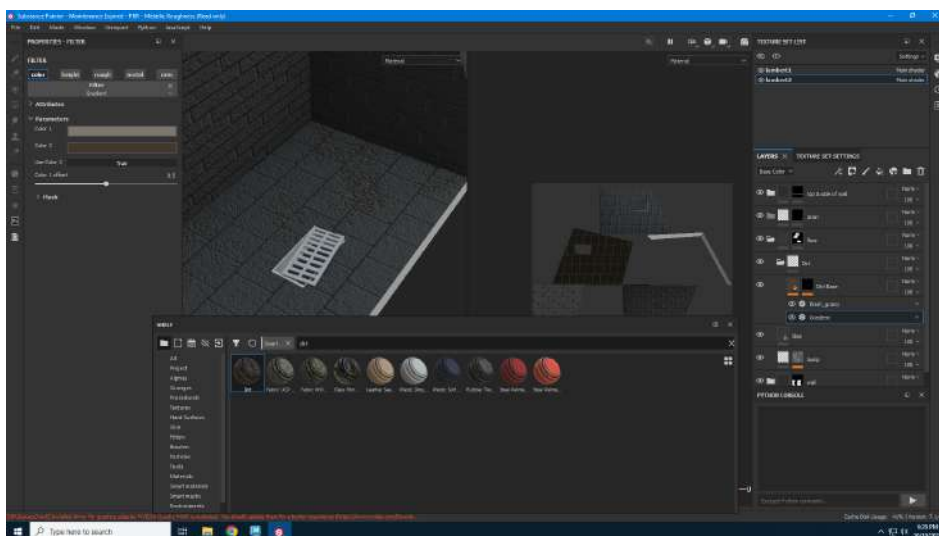
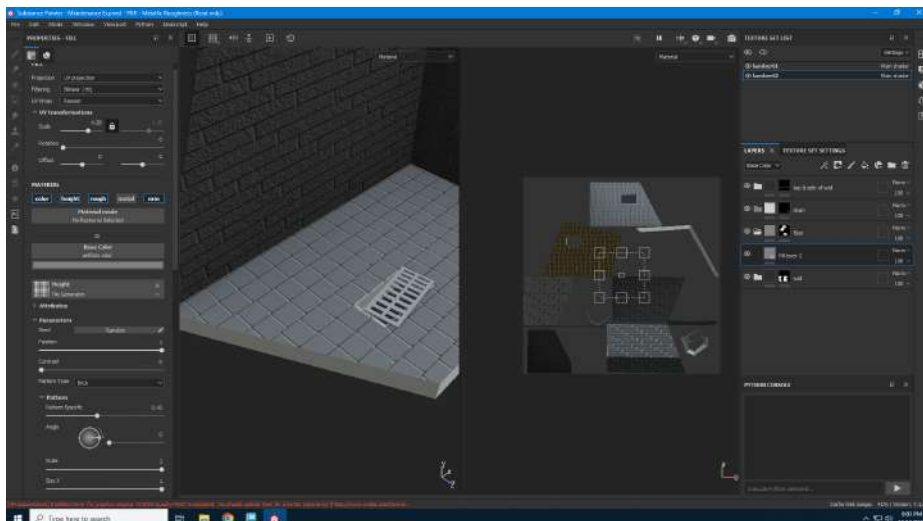
Grunge was used as the bump on the wall. Then a brick generator was utilised as well to create the brick texture, a level of height is added to the brick base to adjust its height



After I finished texturing the wall, I realised the brick was in vertical form instead of horizontal for the right hand side wall.



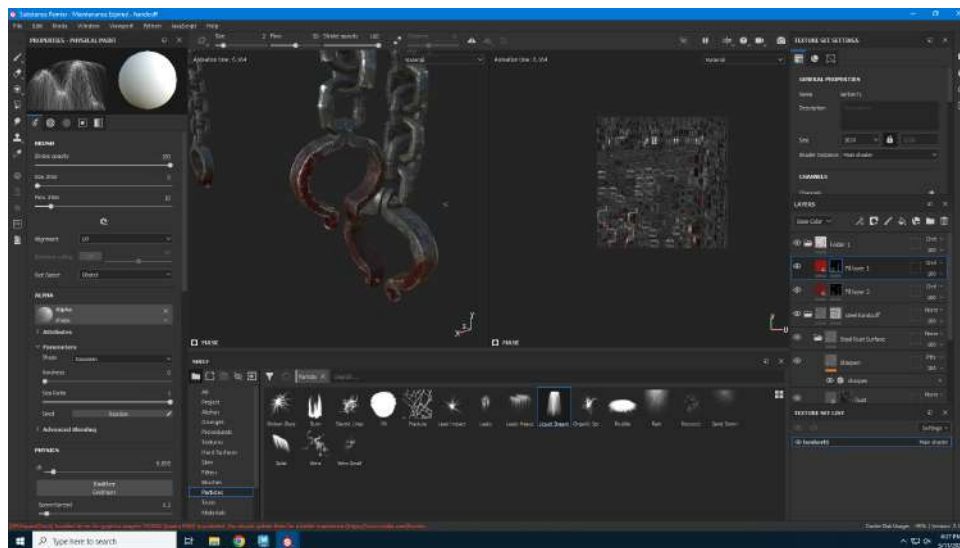
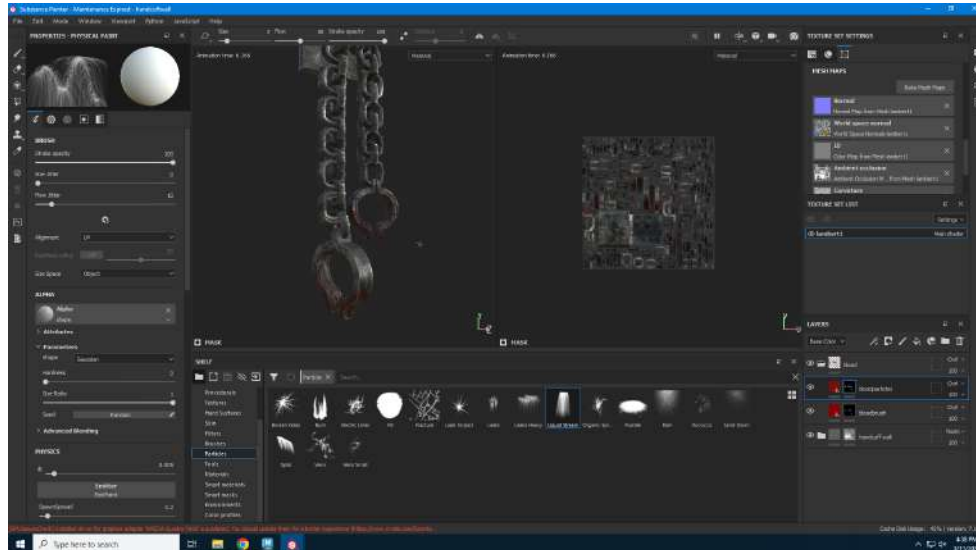
So I went and rotated the uv shell in maya, then reconfigured the file and rebaked the texture.

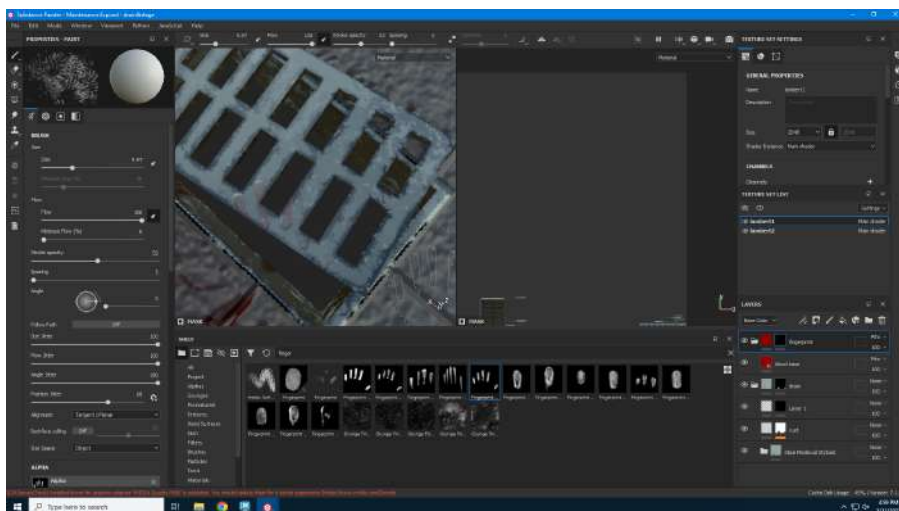
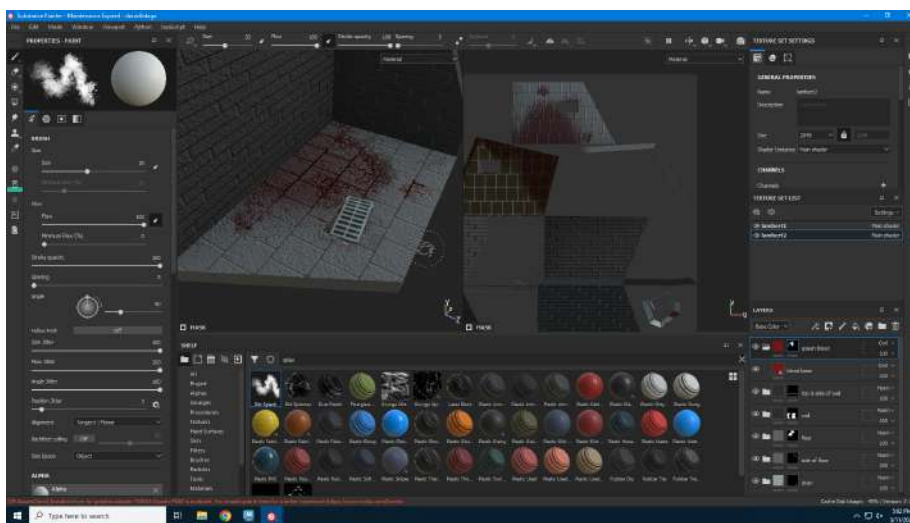
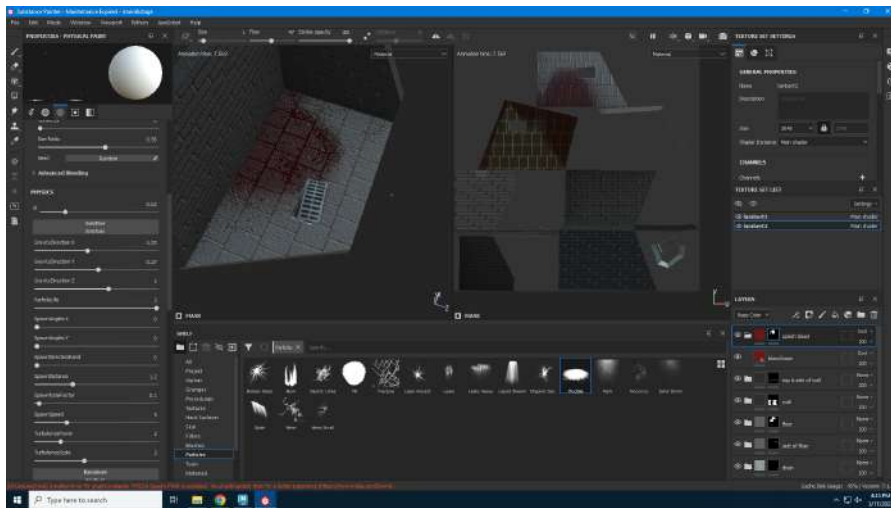


For the floor, a fill layer with tile generator is added to design the tile and I have

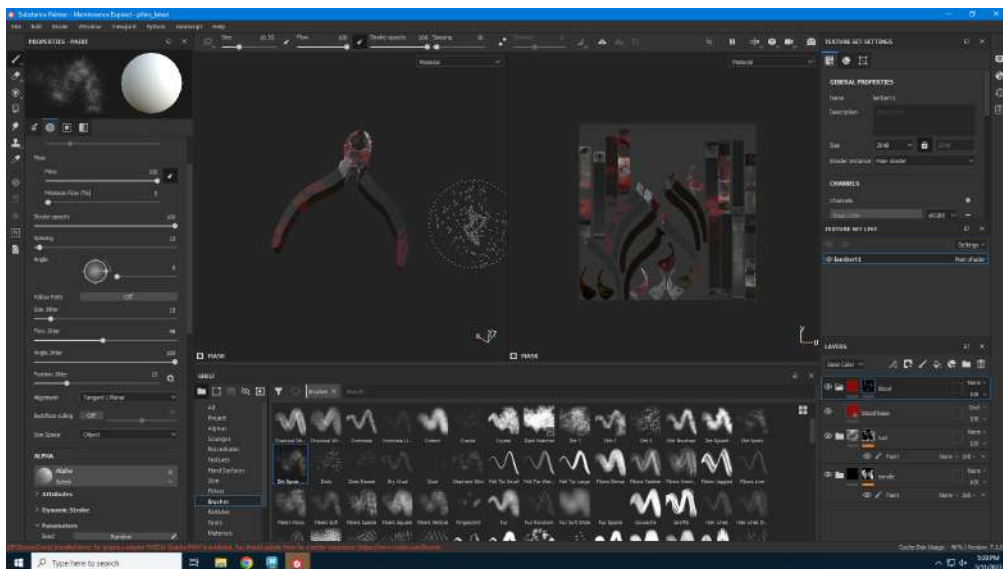
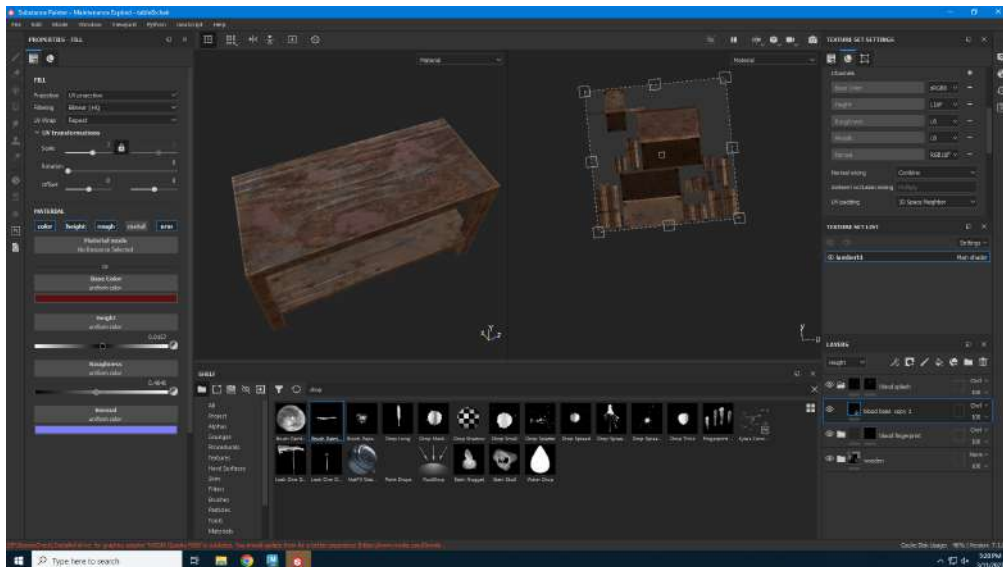
adjusted the scale and other attributes like the gap size and number of X, Y. Some dirt was also applied on the floor using a smart material, dirt. This is to indicate that the torture room has not been cleaned for some times.

- Add blood on handcuff ,floor and table

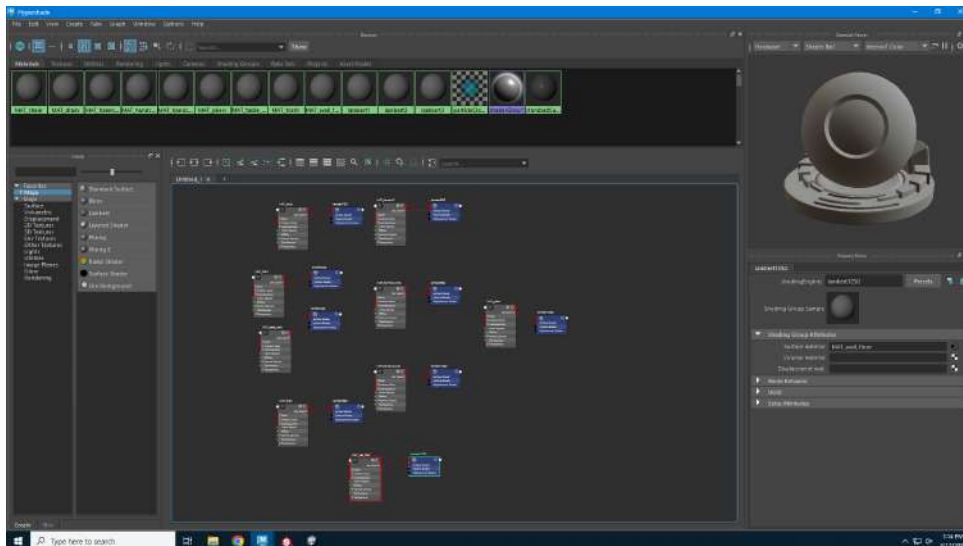




Overhere, I added a fingerprint on the drain to indicate that someone with blood on their hands has opened the drain.



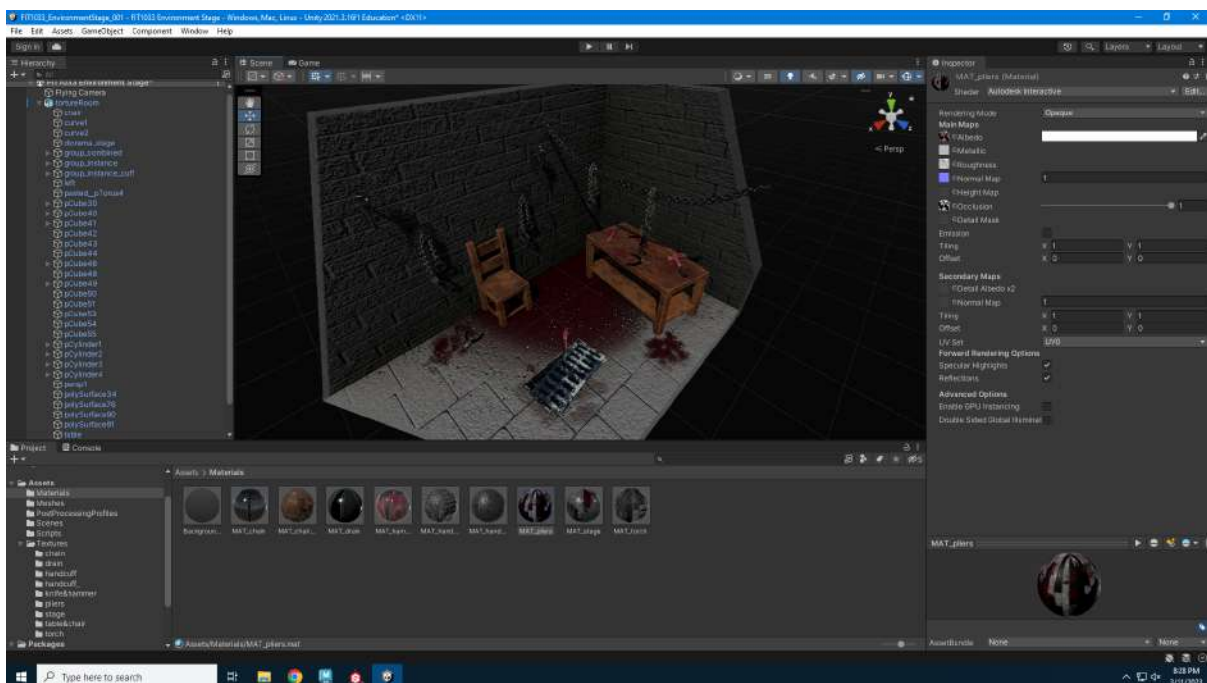
After I have done exporting the textures to Unity, I realised I miss out the material creation, which should be done before moving to substance painter.



So I try to do the creation of material in Maya and rebake the mesh in substance.

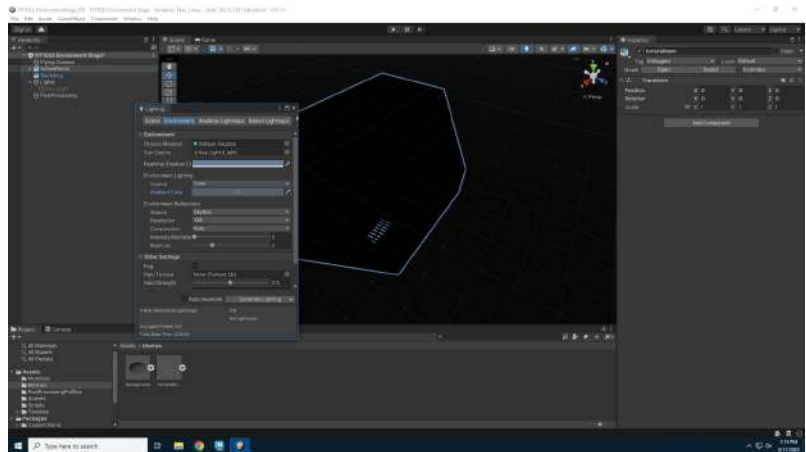
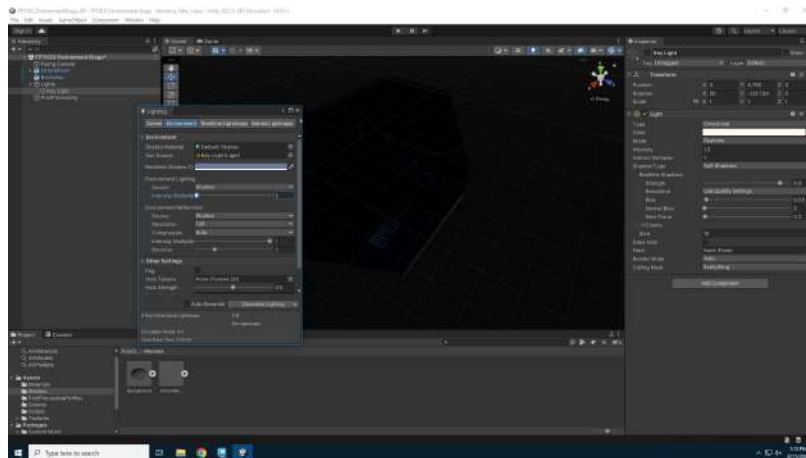
UNITY

But later on it turns out that I can just create a material in unity and assign the textures to this material. After dragging the textures onto the objects, I also untick the sRGB for metallic and roughness, this then helps to reduce the wetness of the overall model.

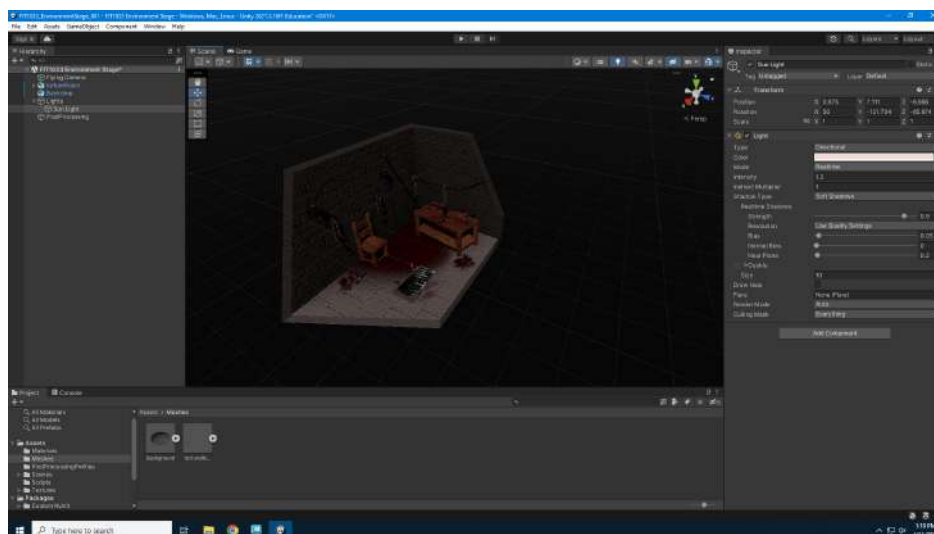


So this is my diorama after applying the material to the objects.

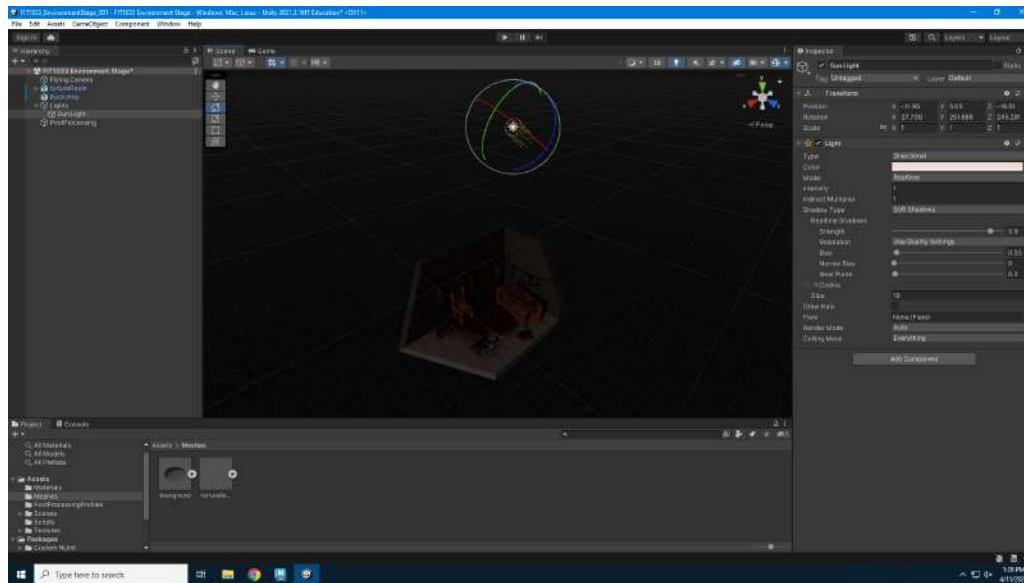
Dynamic lighting



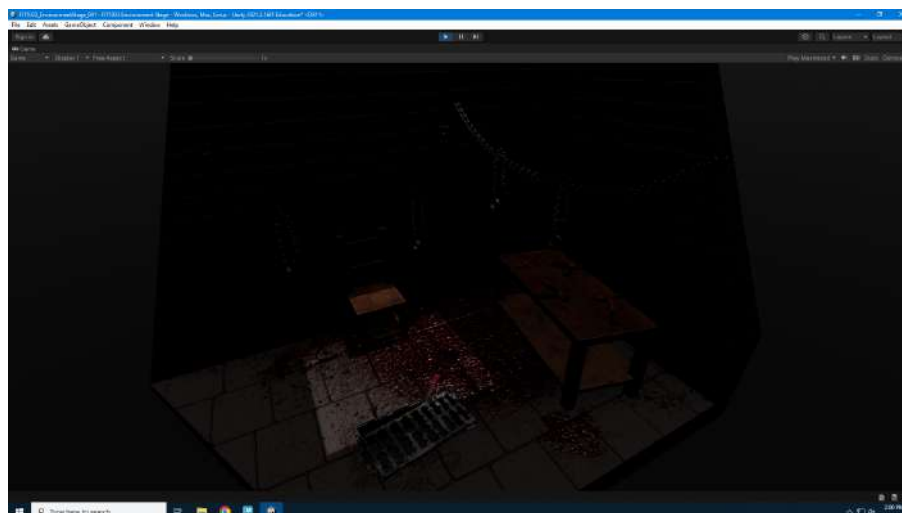
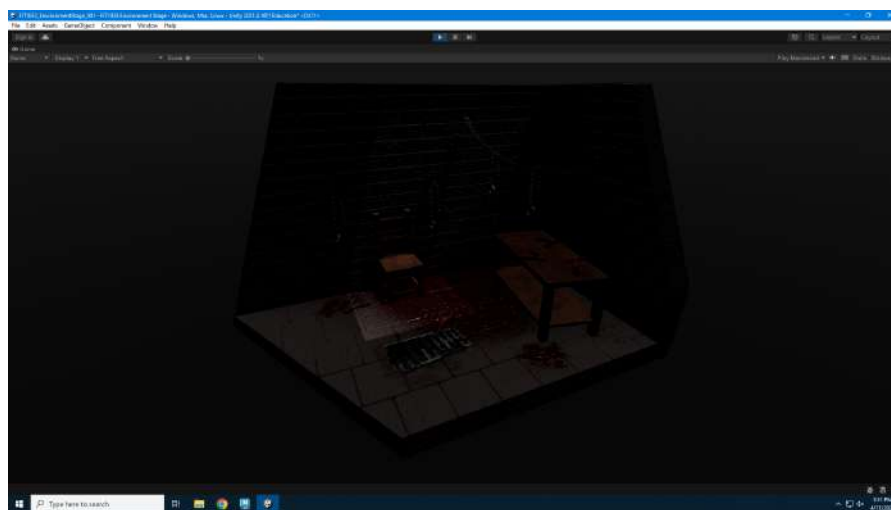
I had followed the week 12 tutorial to build up the light source.



The colour of the sunlight is adjusted to a pinkish colour to indicate a blood moon.

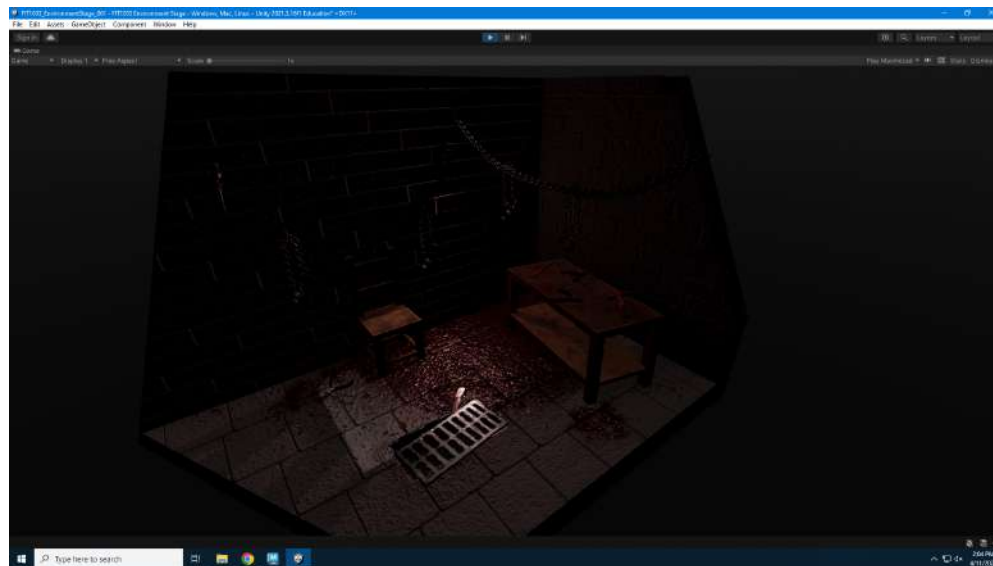
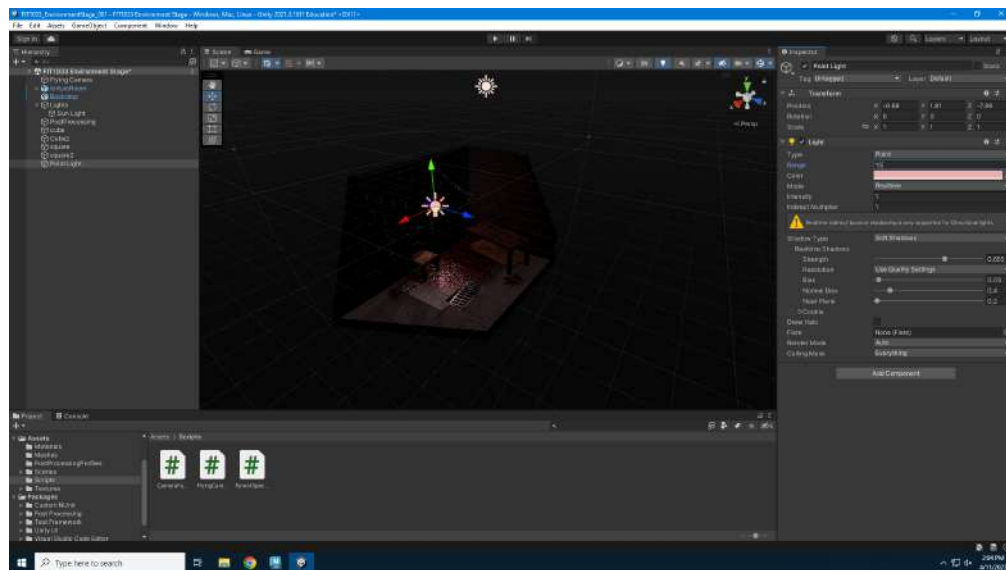


Then I rotated the sunlight to see how it would fit the scene.

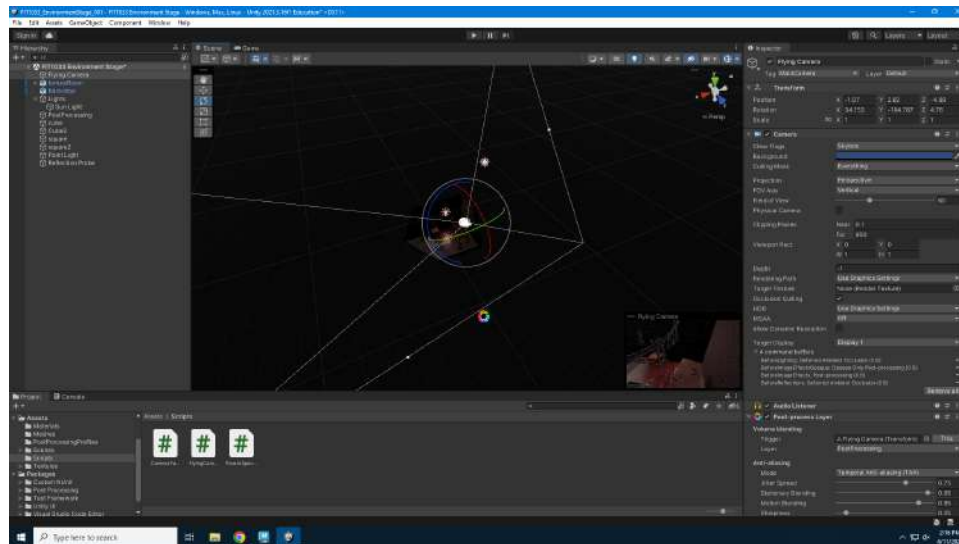


For the light blocking geometry, I added four cubes to form a square window. Which

shows that there is a window on top of the room.

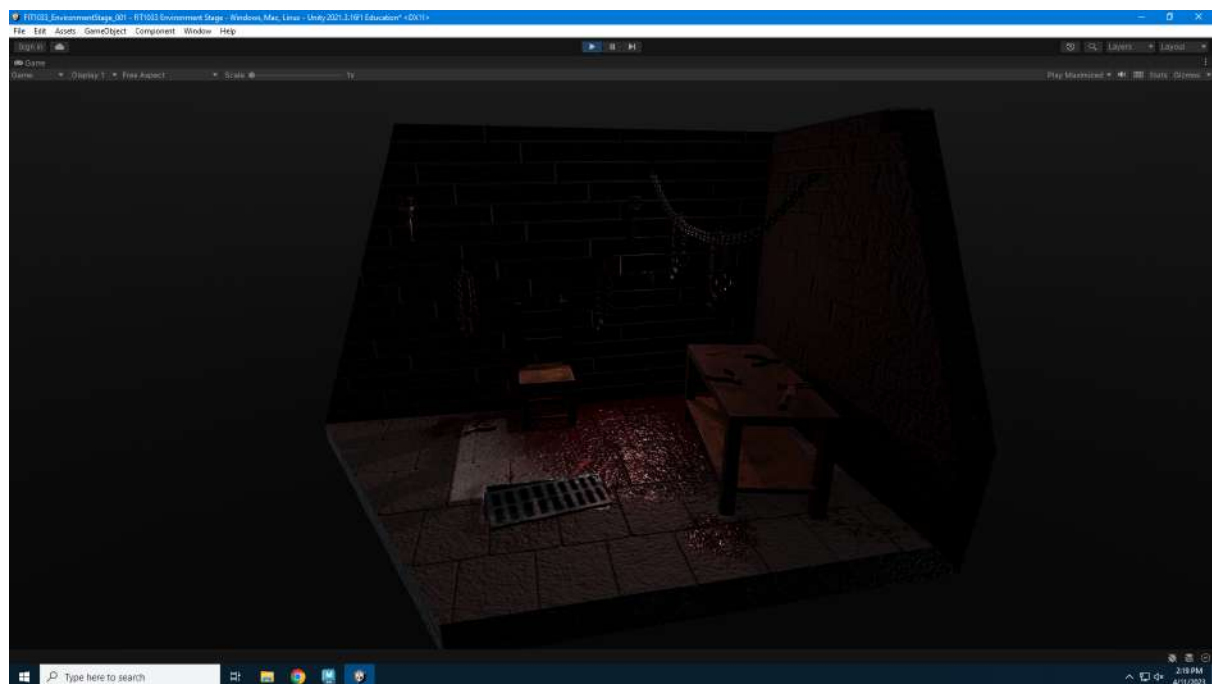


Then a fill light, point light is added so the space is not unrealistically dark.



I also adjusted the flying camera position so that the first scene will start from the side of the chain.

FINAL MODEL



This is the final model of my diorama.