WEEK 1: Art Bible/Blockout

Art Bible

For the brief of a mobile platform game level, my idea was to create an abandoned freak show circus from the WW2 era. I was really interested in the visual relationship between such a bright and colourful scene when it meets with the decay of abandonment (Figure 8). Having seen this type of scene in various pop culture references I was keen to create my own version.

In the beginning I was very inspired by the TV series *American Horror Story: Freak Show* (Figure 0) and the film *Circus World* (Figure 1-2). I really liked the Old Hollywood era of circus and wanted to fill my level with as many historical elements as possible (Figure 3-6).

Throughout the making of my art bible I was intrigued by how I could light the scene and play with colour, I intended to utilise the spotlights to draw the eye into the centre of the stage (Figure 13-14). I wanted the lighting to be quite contrasting to give a sense of discomfort to the player - perhaps there are monsters lurking in the shadows?

Cultural References:

Figure 0.

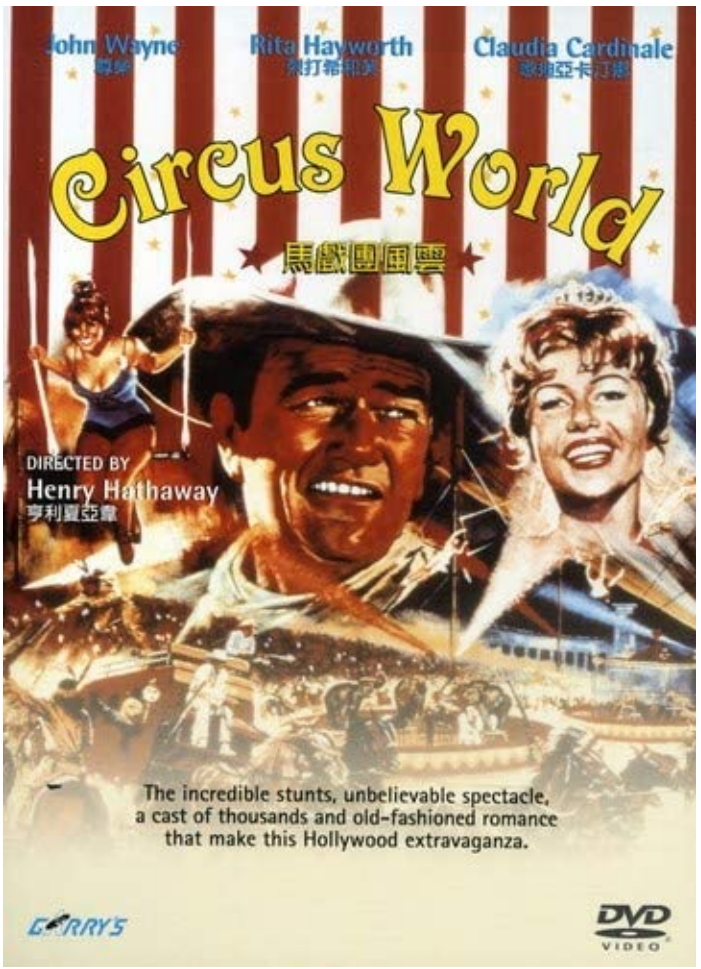


Figure 1.

Figure 2.

Historical References:

Figure 3.

Figure 4.

Figure 5.

Figure 6.

Art Bible References:

Figure 7.

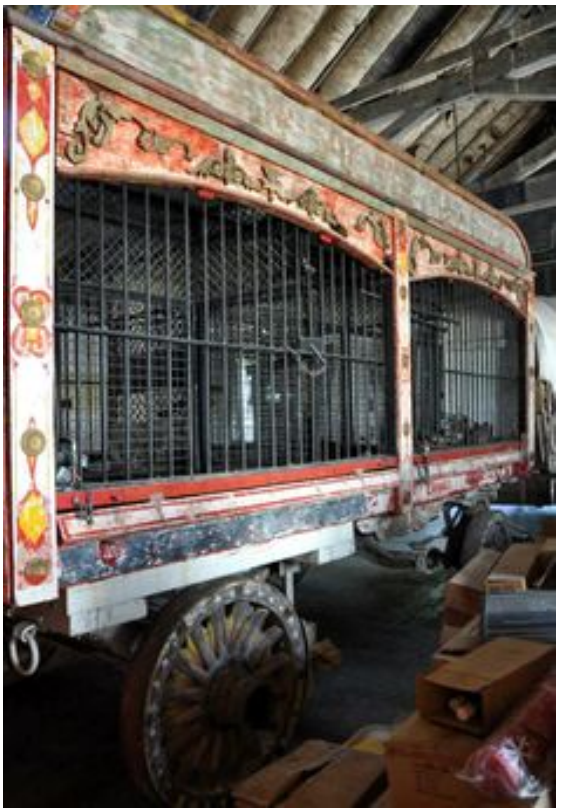


Figure 8.

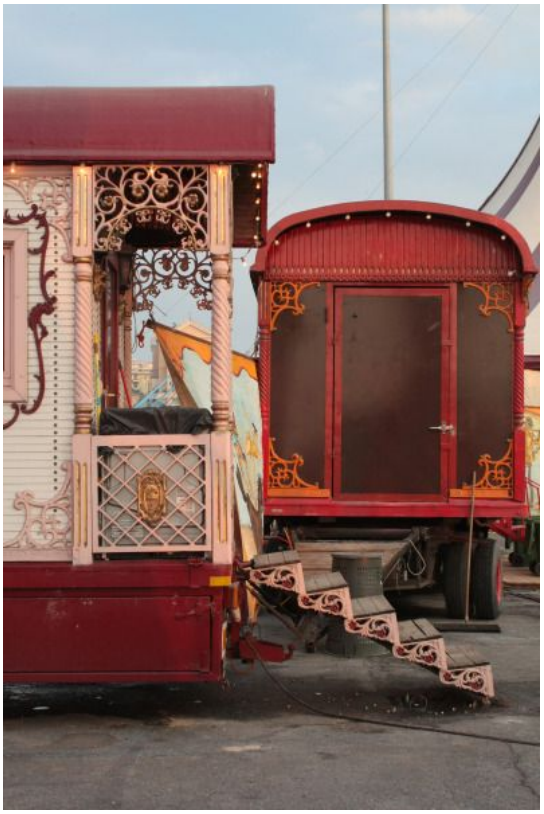


Figure 9.

Figure 10.

Figure 11.

Figure 12.

Figure 13.

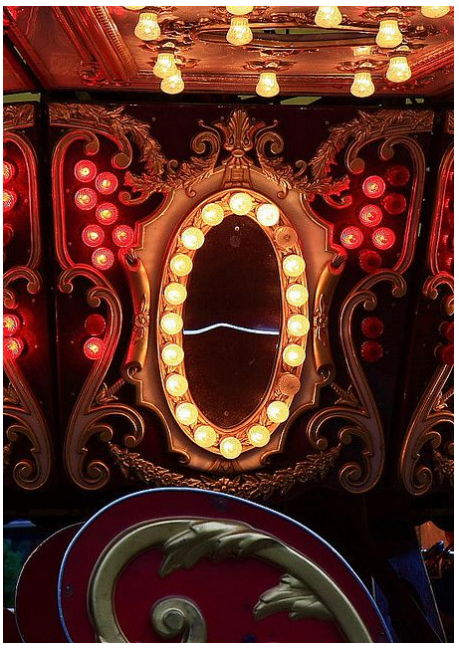


Figure 14.

Blockout

When creating the blockout I was conscious of the scale of each prop within the scene. The blockout is an important step in setting the layout and proportions in relation to the player. To maximise the certainty of creating a scene that was navigable and proportional, I changed the size of the grid in Maya to be 1m x 1m and used the human model as a guide when making every prop (Figure 15).

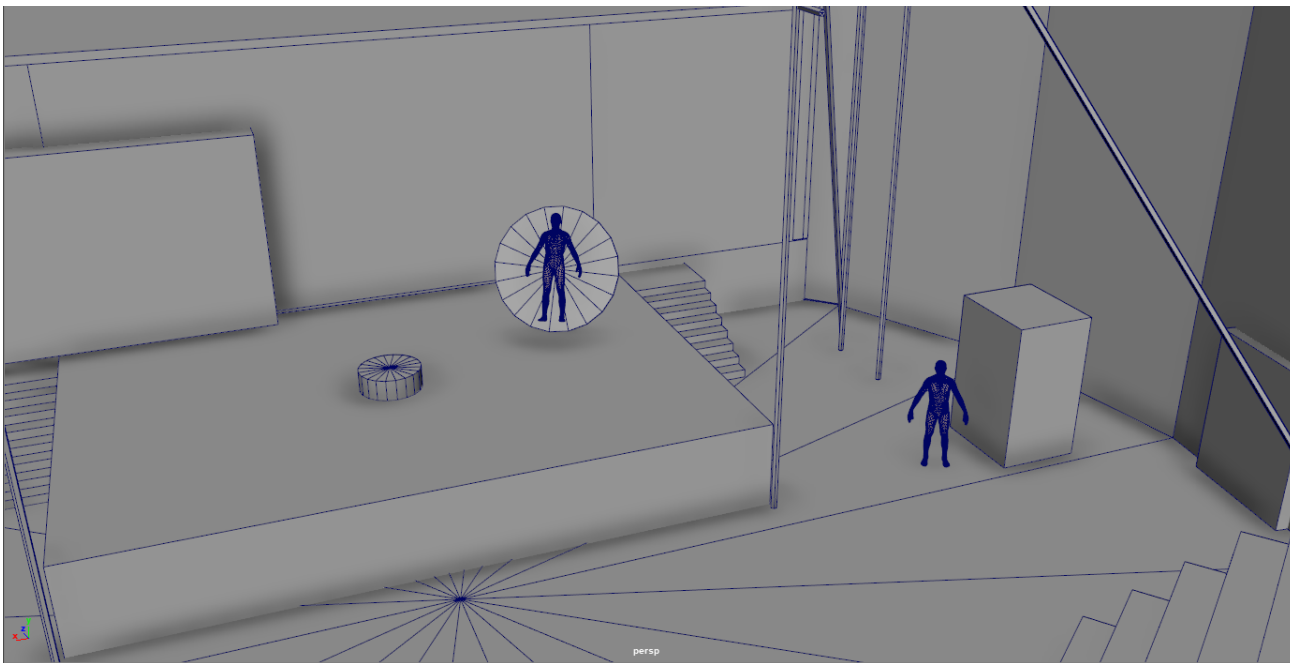


Figure 15.

Early on I also made the decision to use less subdivisions on my circular props to avoid making the props too expensive for the polycount. Although we were taught the contrary and that it is important not to be cheap on curves, I felt that because the camera was so far away and it wasn't a first person view, that the player wouldn't notice the slight angularity (Figure 16). In some cases, I used smoothing groups to ‘fake’ the look of more subdivisions at a lower cost to the polycount.

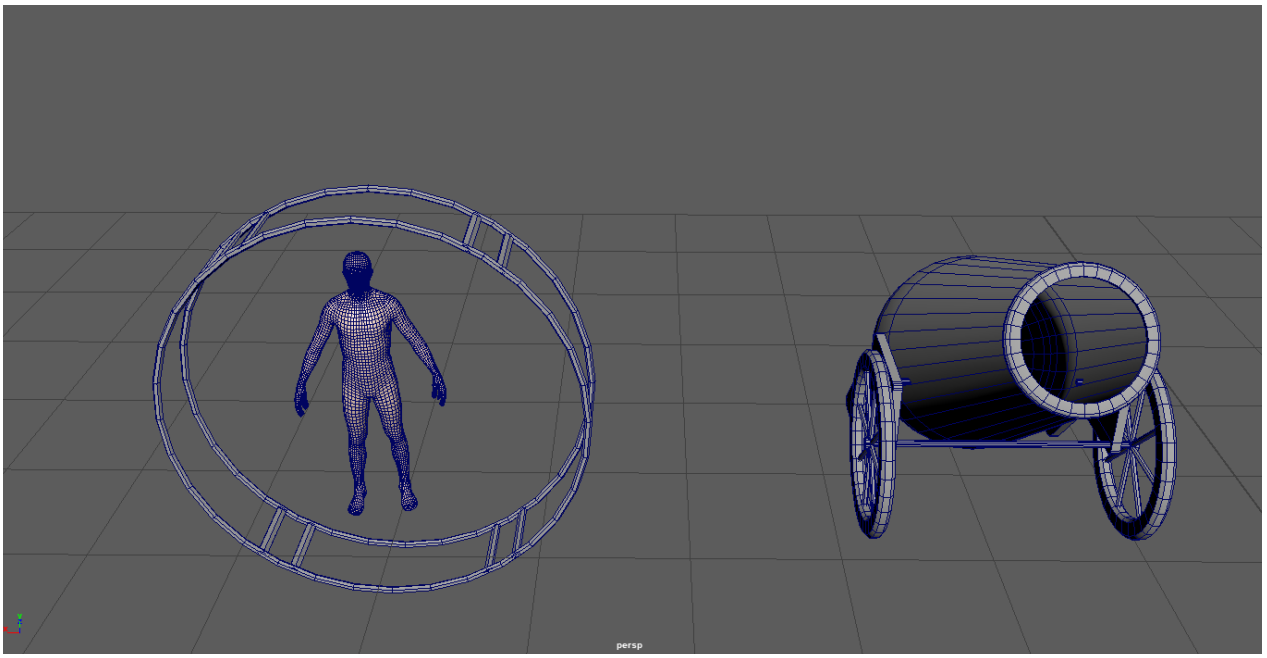


Figure 16.

One design element that I disliked in the initial blockout stage was that the entirety of my scene didn't fit within the constraints of the angular floor (Figure 17-18). So in the next iteration, I tested multiple different floor shapes and sizes and found one that was large enough to encase the level but also had the right shape, giving the impression of a circus tent (Figure 19-21).

Blockout 1:

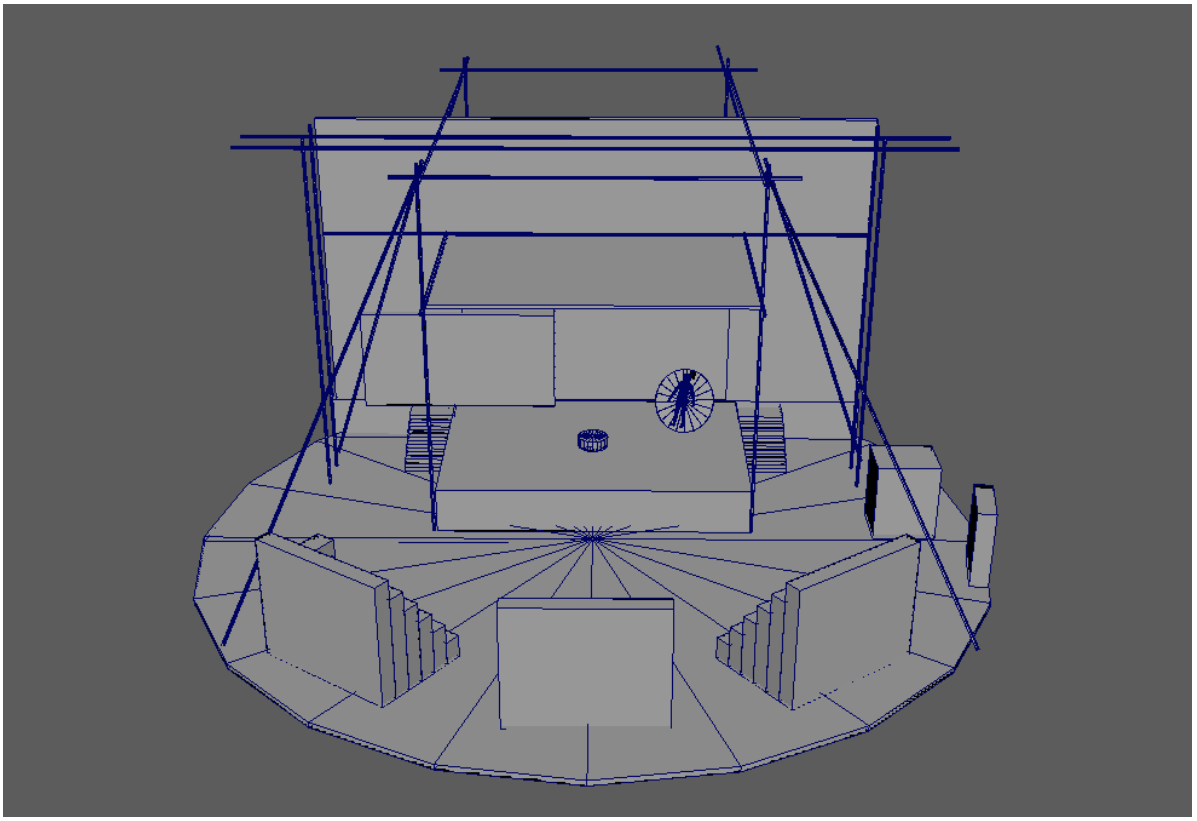


Figure 17.

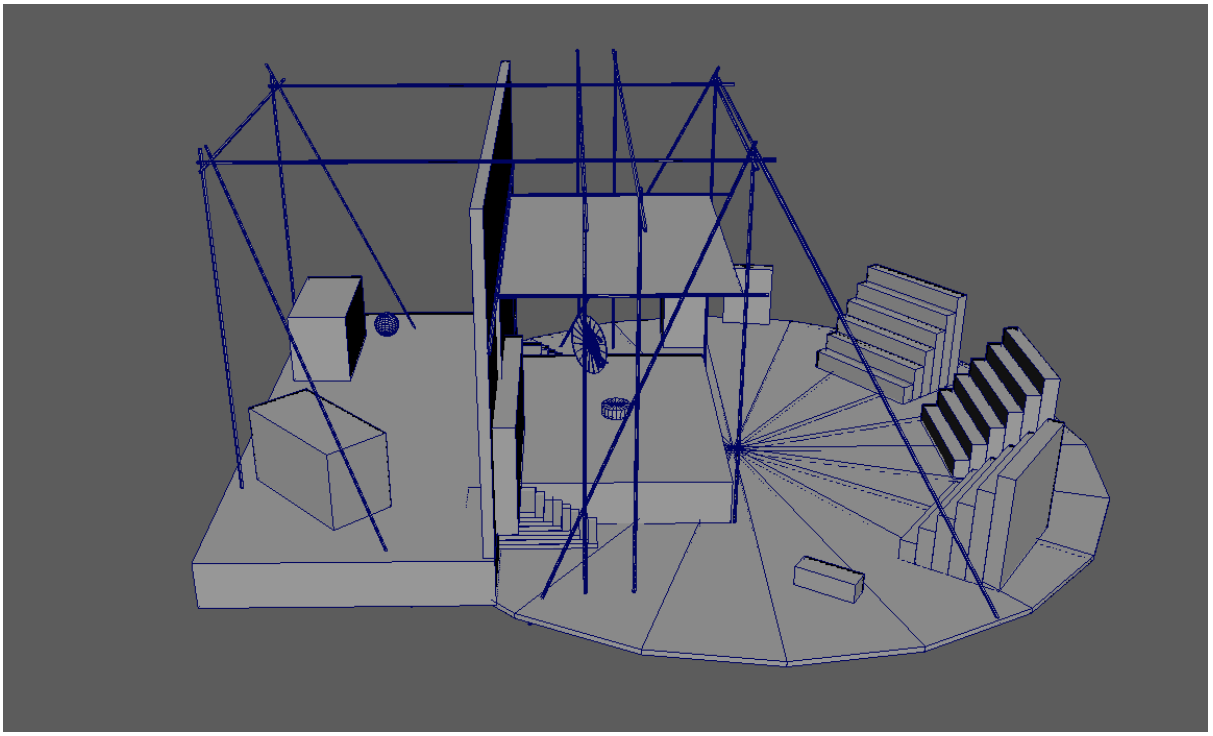


Figure 18.

Blockout 2:

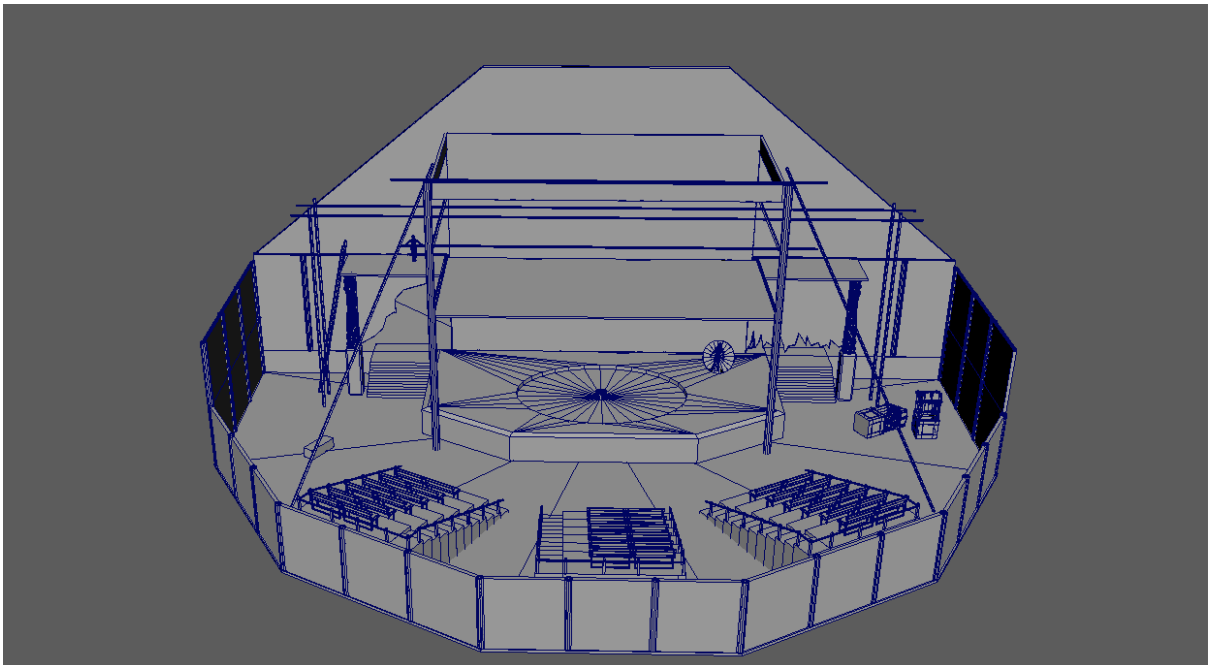


Figure 19.

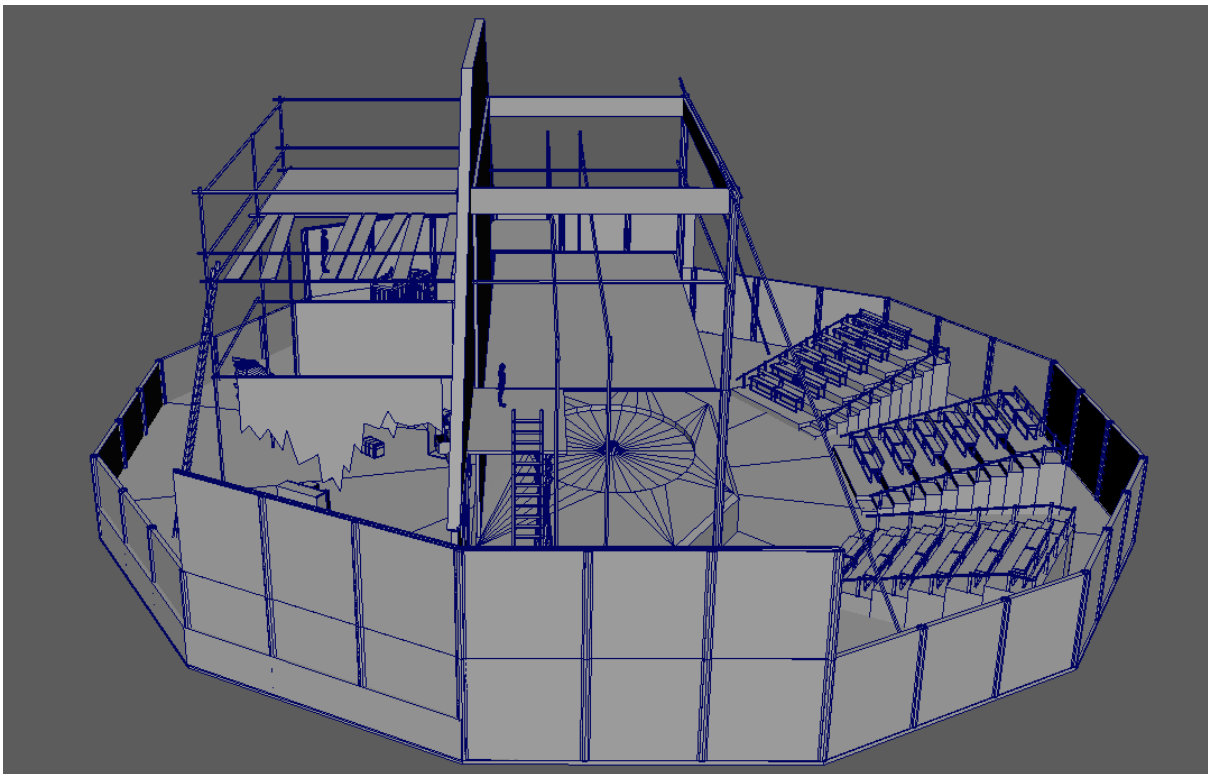


Figure 20.

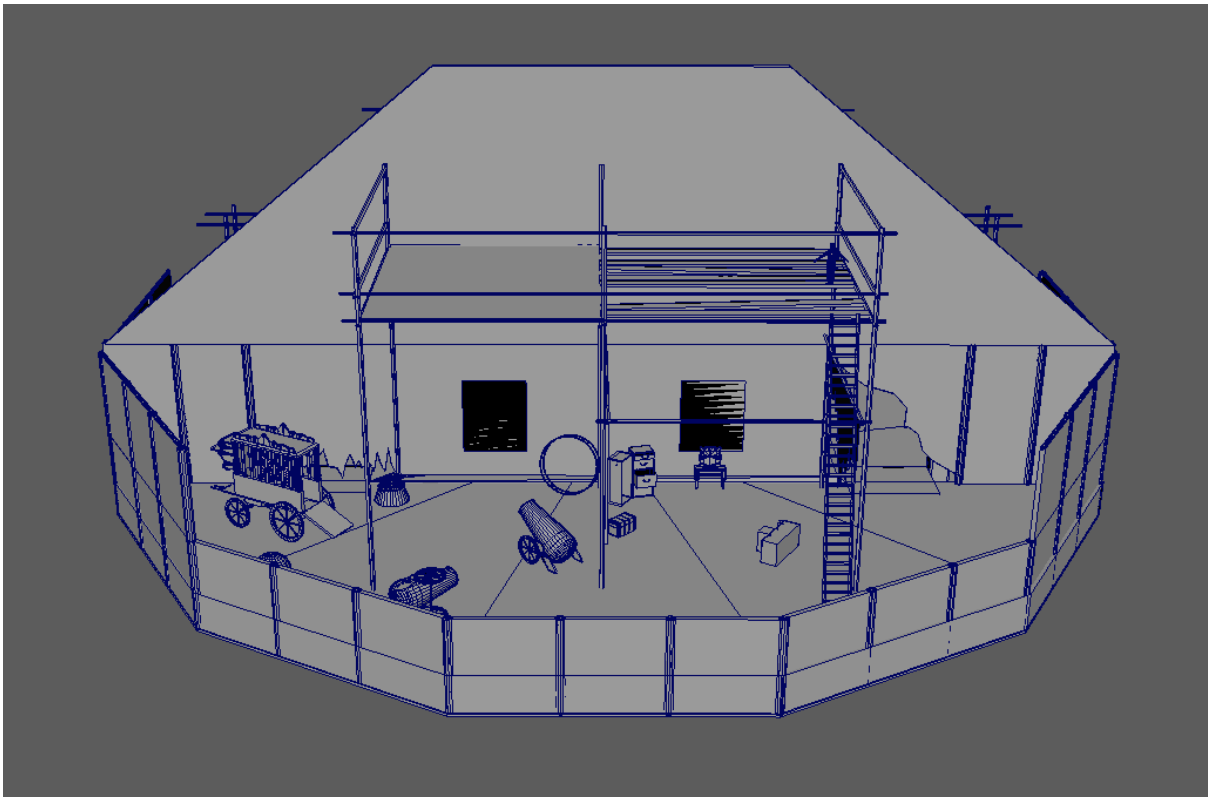


Figure 21.

After creating one of my first props - the cannon - I looked at where I could reuse the ready-made components. I realised that I could utilise the same wheels from the cannon on every other object that required them (Figure 22). This helped the stylistic consistency carry through and also made UVing much faster, as I only needed to create a UV for one single mesh. I also used this same approach when creating variations of the benches (Figure 23).

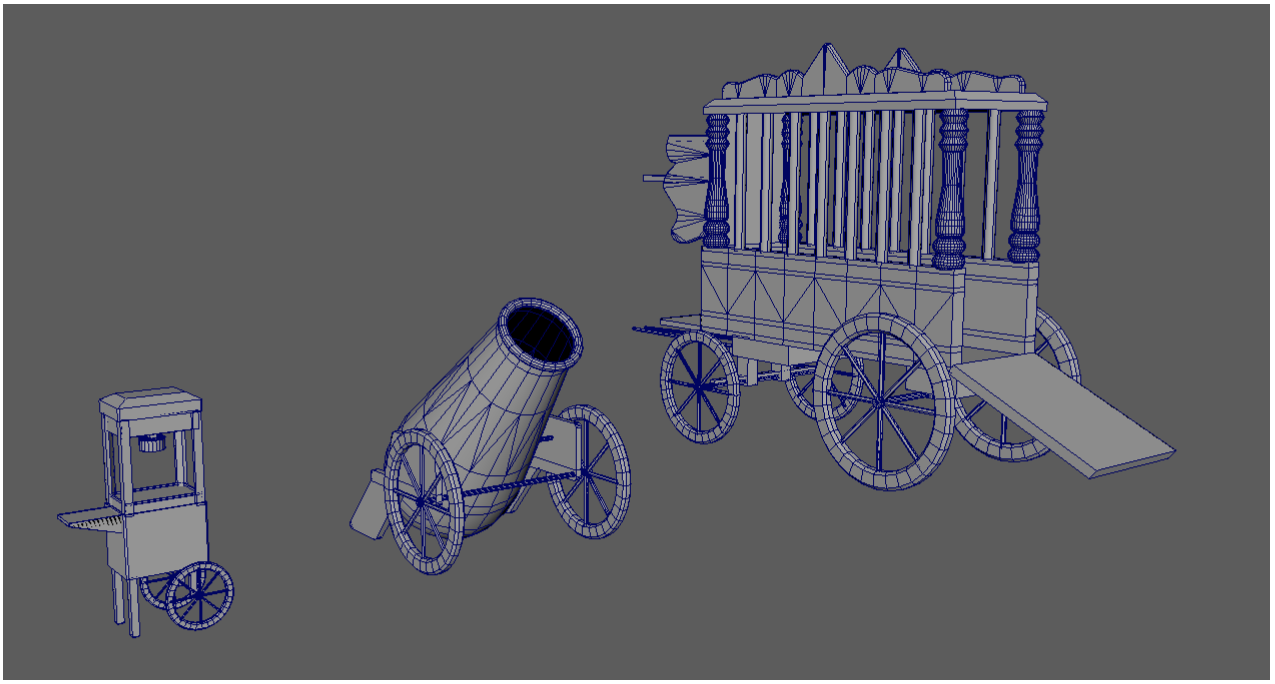


Figure 22.

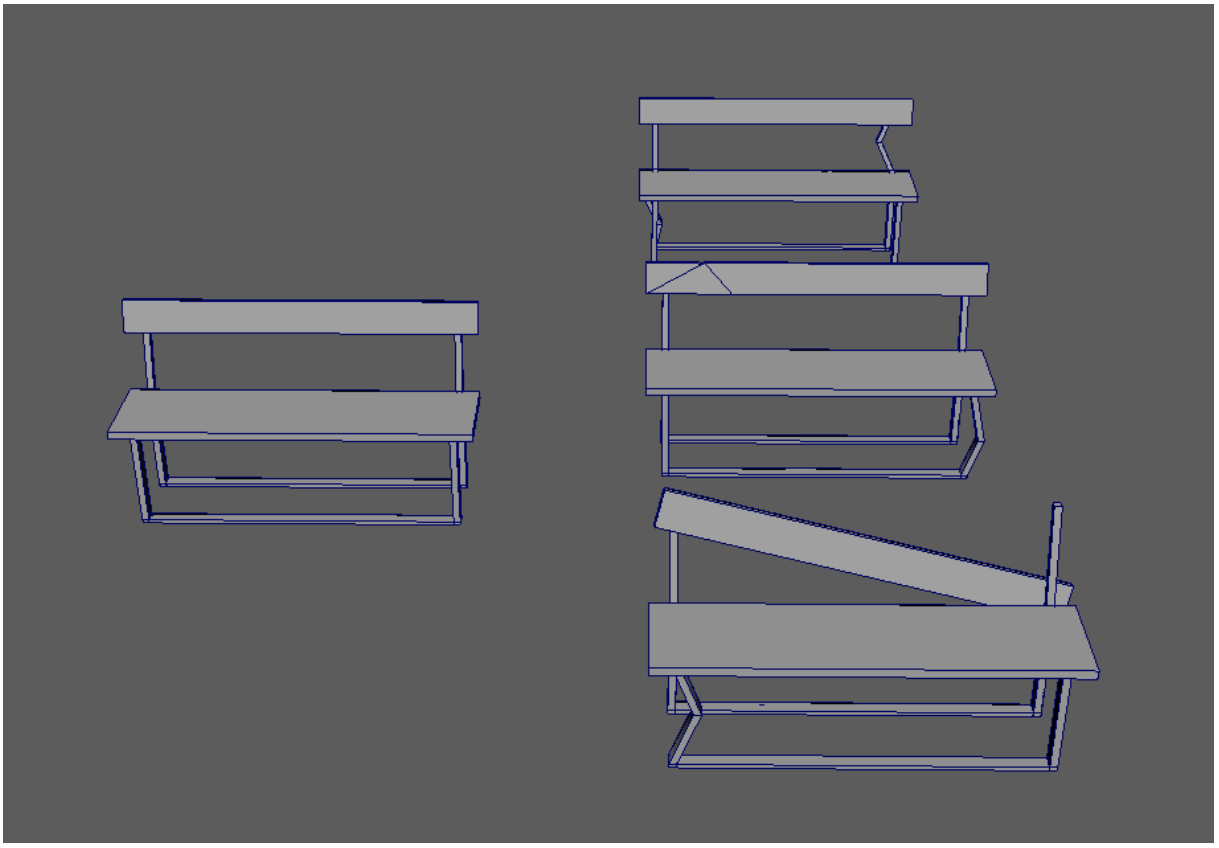


Figure 23.

WEEK 2: Modelling/UVs

UVs

When creating my UVs I made the effort to pack as many meshes into the 0-1 grid as possible to save on space - the straightening UVs function helped greatly in maximising the use of the area (Figure 25). Also when learning about texel density I found it a helpful guide to ensuring uniformity of resolution between objects (Figure 24).

I found it was an important step to move the pivot to the bottom of each mesh and snap it to the centre of the grid. This means once it is imported into Unreal Engine, the pivot is in the centre allowing me to move each object with ease. In fact, I decided to make my own custom shortcut which let me freeze transformations, delete history and centre a mesh all in a single click.

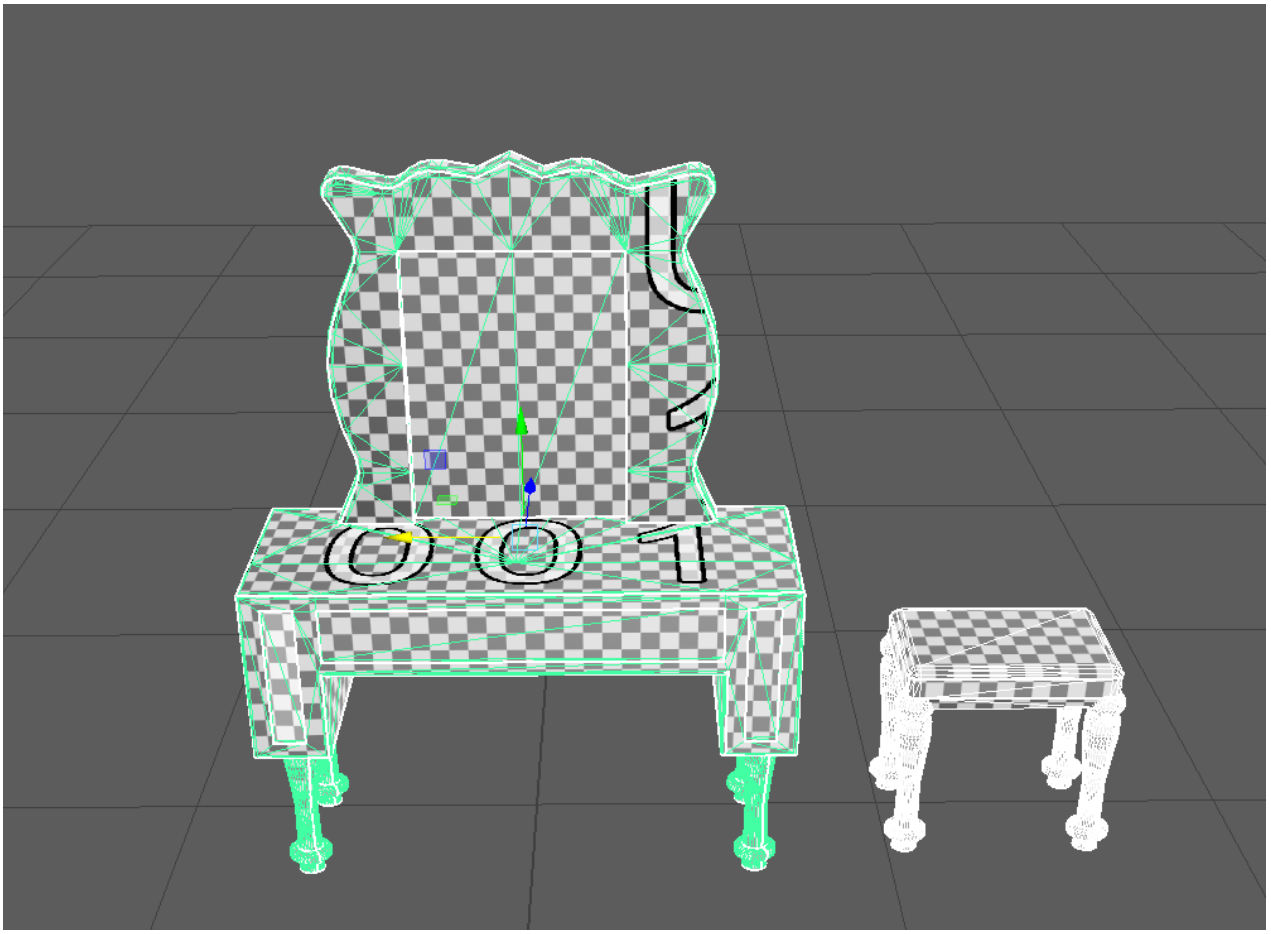


Figure 24.

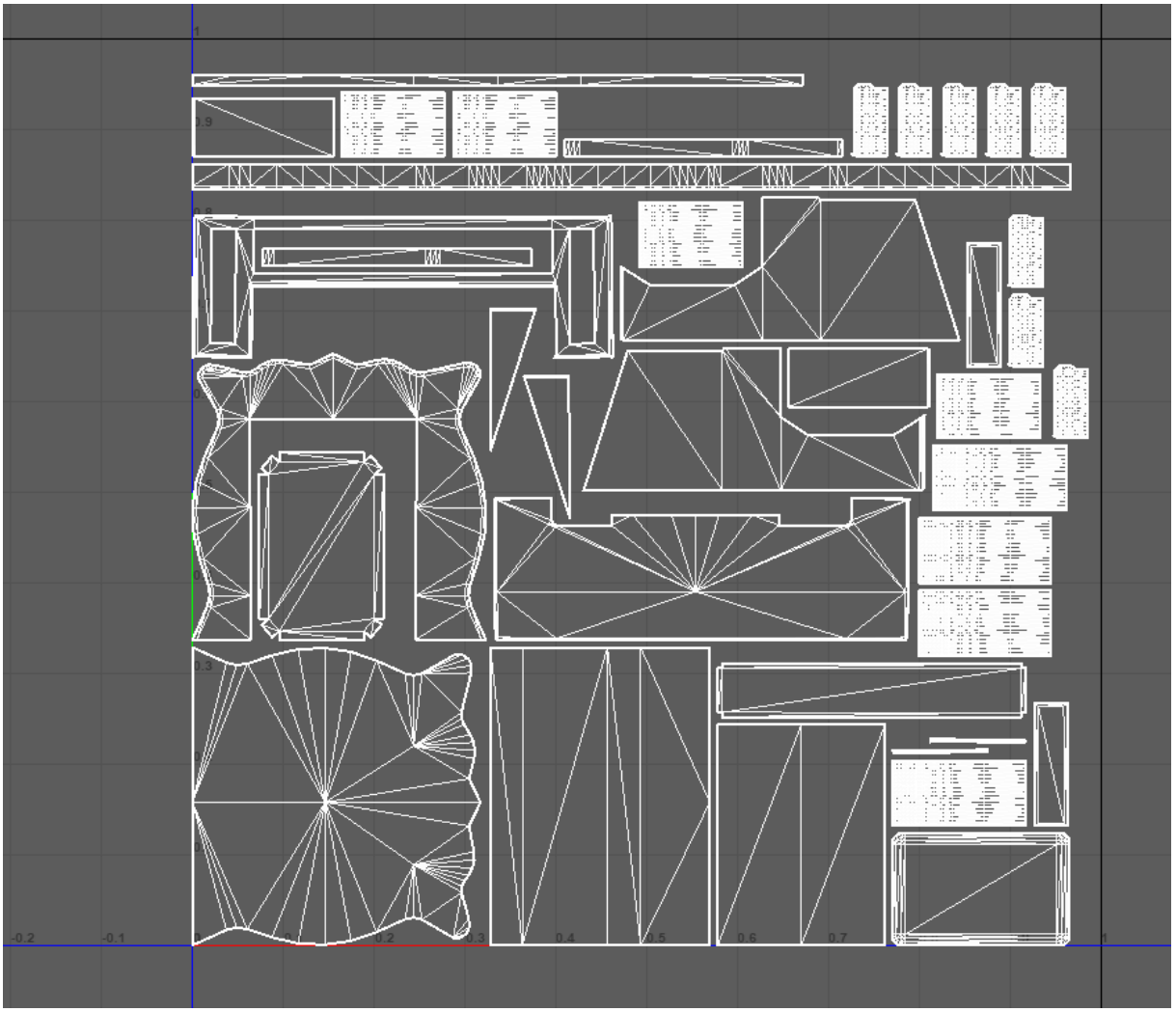


Figure 25.

Unreal Engine

Having imported the project to Unreal Engine, my first observation was that the safety net would end up blocking the view of the avatar and cause the player to become stuck when going into the backstage area (Figure 26). To combat this I changed the camera angle which helped in the initial blockout phase. When we got into the texturing phase I instead made the net transparent with the use of Alphas which made moving around the scene much smoother (Figure 27-28).

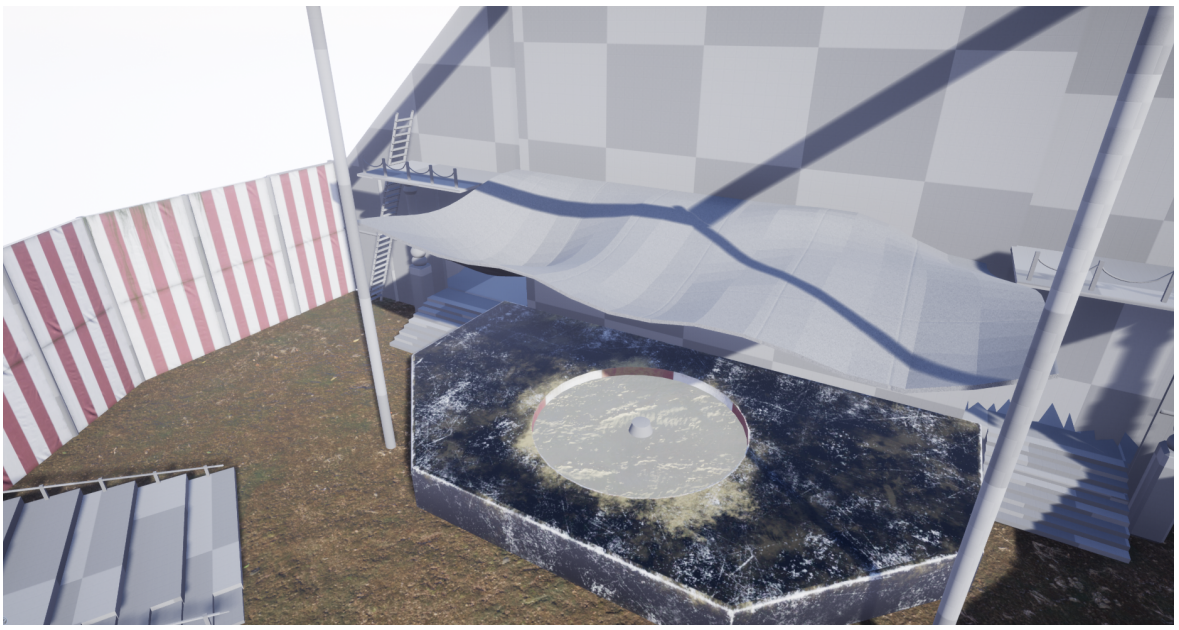


Figure 26.

Figure 27.

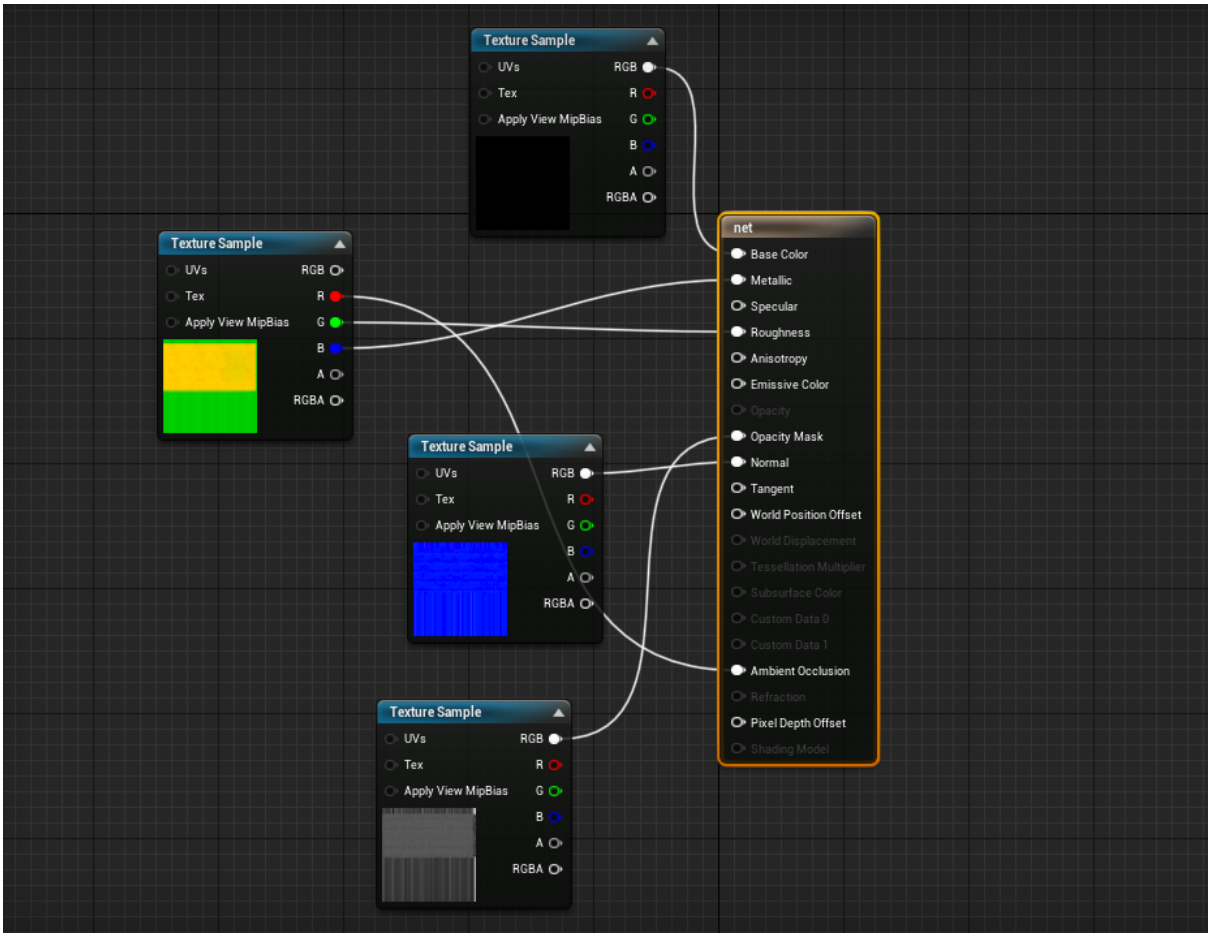


Figure 28.

I also found another technical issue that needed addressing when creating the next version of the blockout. The steps were too steep for the avatar to walk up so I went back into Maya and amended the proportions. On the design side, I felt the scene lacked some height variety, especially in the backstage area. To address this, in my next iteration of the blockout I created a second floor for more visual interest.

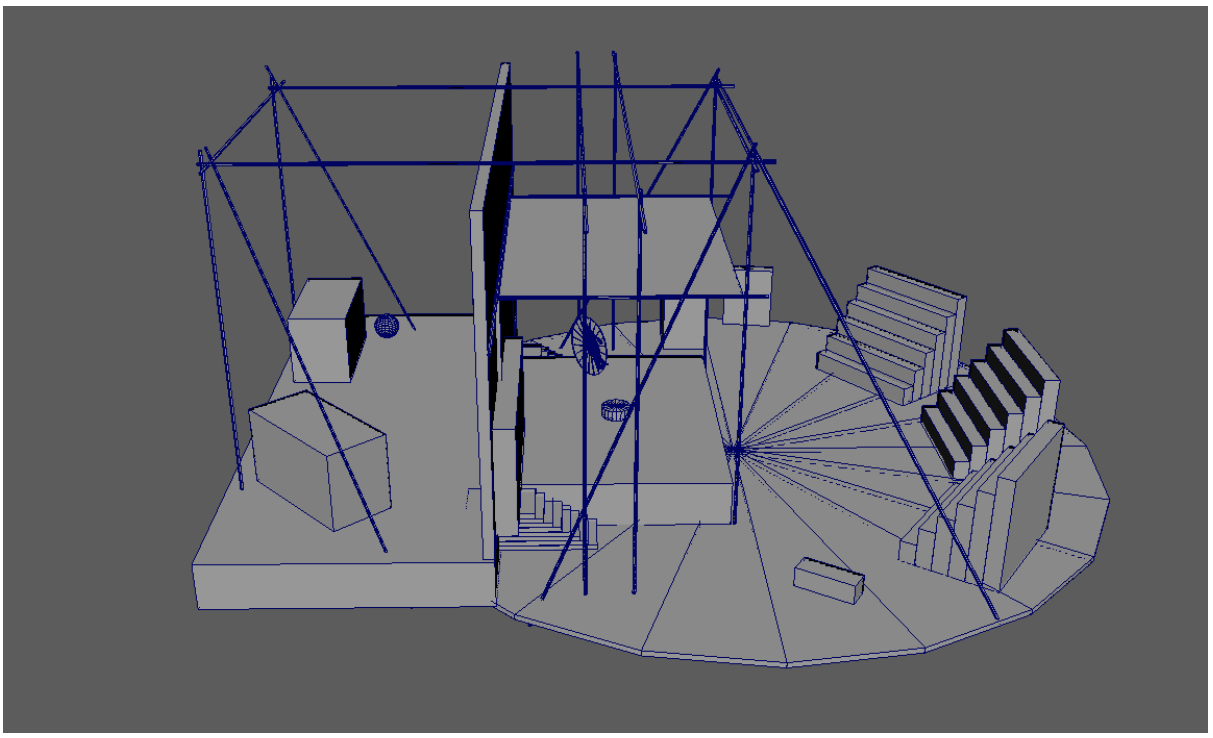


Figure 29.

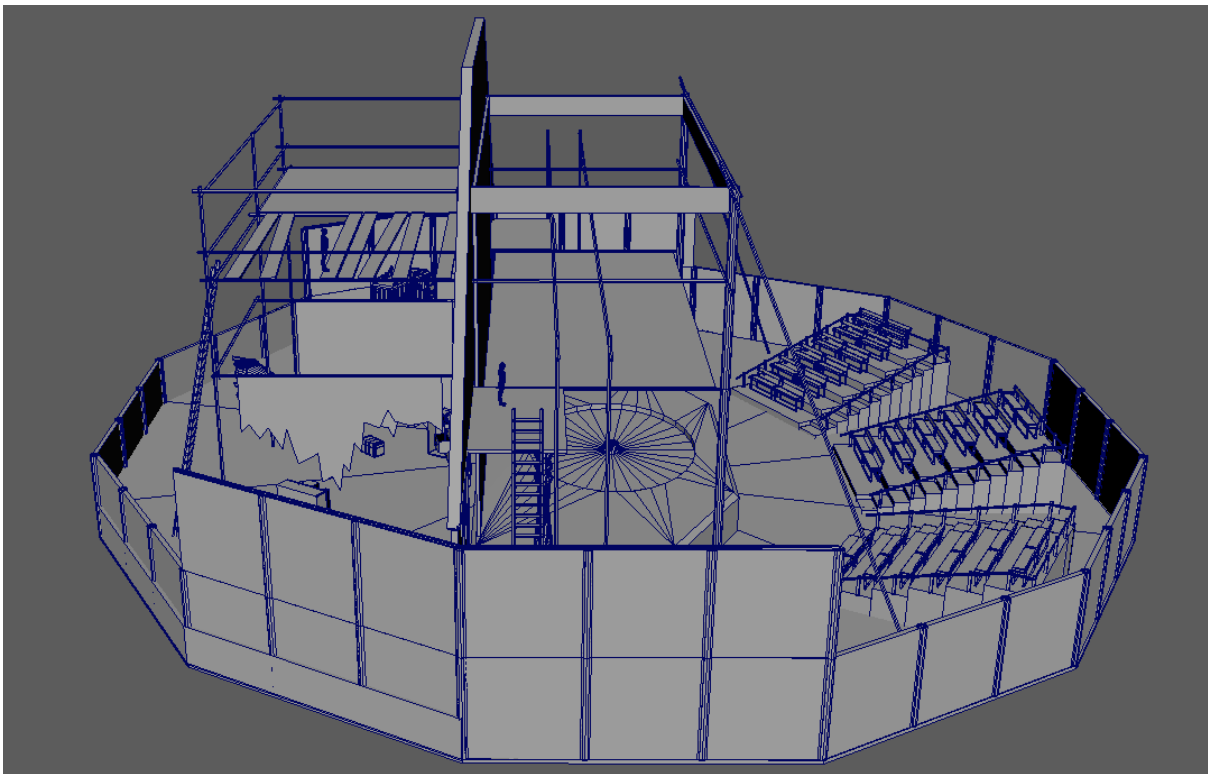


Figure 30.

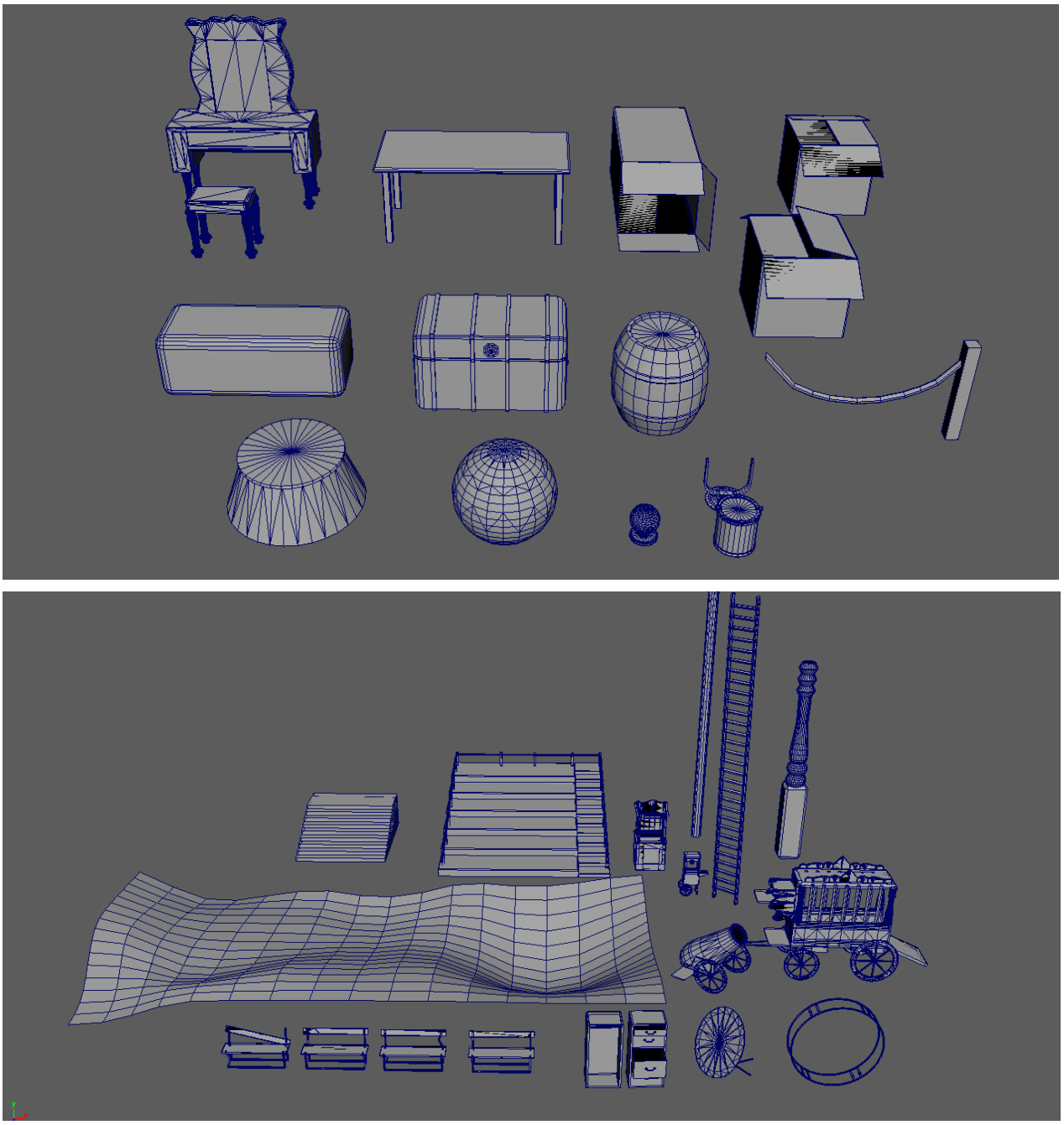


Figure 31. - Prop meshes in Maya before being exported into Unreal Engine.

WEEK 3: Modularity

We learned about the importance of modularity when creating a level, which allows you to ‘mix and match’ different elements to expand your library of structural designs. Generally the walls and floors are modular, however I chose to only make the walls modular (Figure 32) as I thought the complex shape of the floor would be easier to create in one flat piece (Figure 33). I was satisfied with the outcome but if I were to go back again I would also do the floor in a tileable texture, for greater control in scaling once inside Unreal Engine.

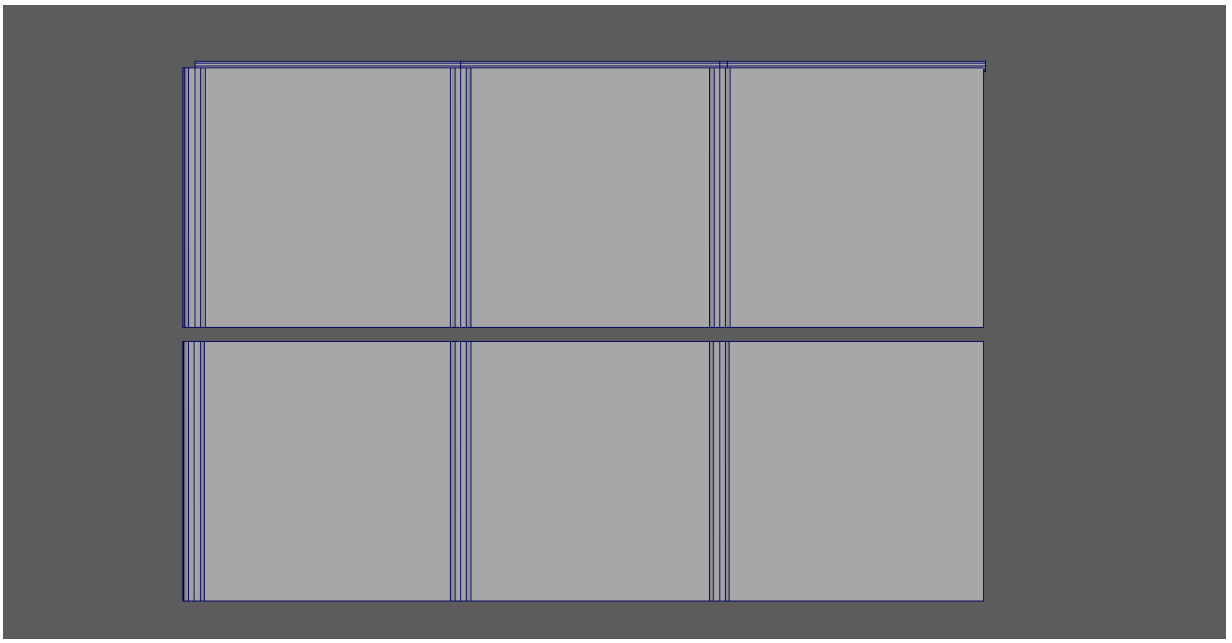


Figure 32.

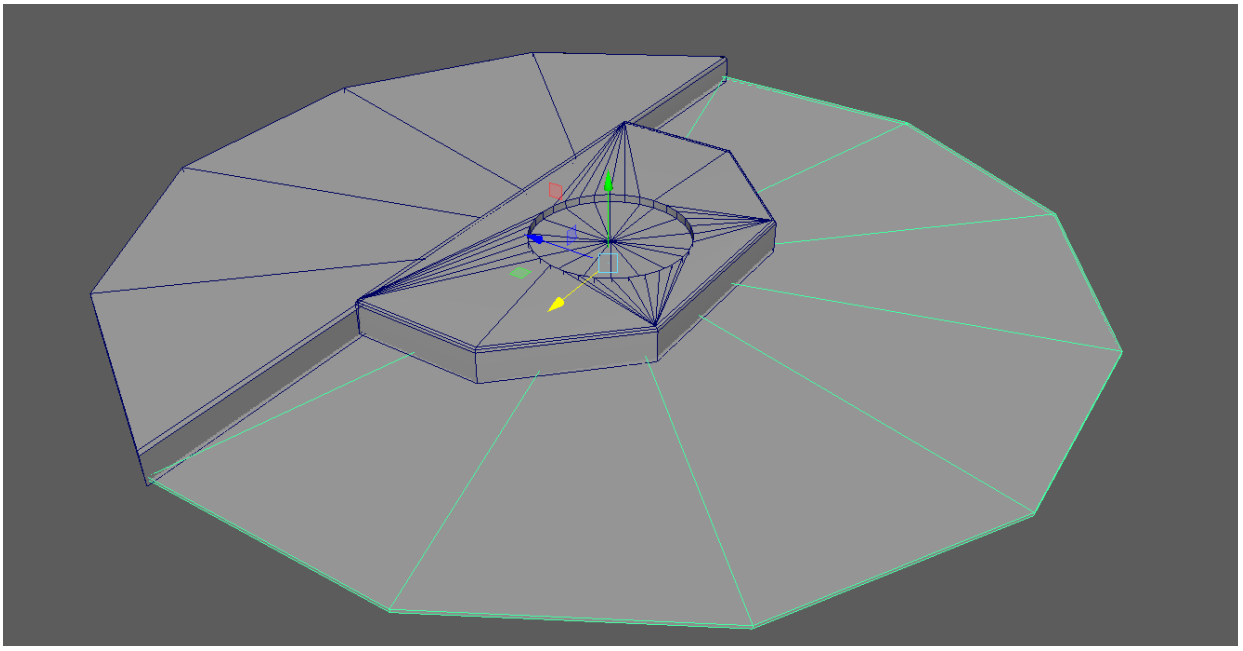


Figure 33.

At this stage, while I had started set-dressing, my tutor suggested that I block off part of the backstage area to make the space more cramped and give a better feeling of chaos. Looking at the before and after, I definitely agree with his feedback (Figure 21 and figure 34).

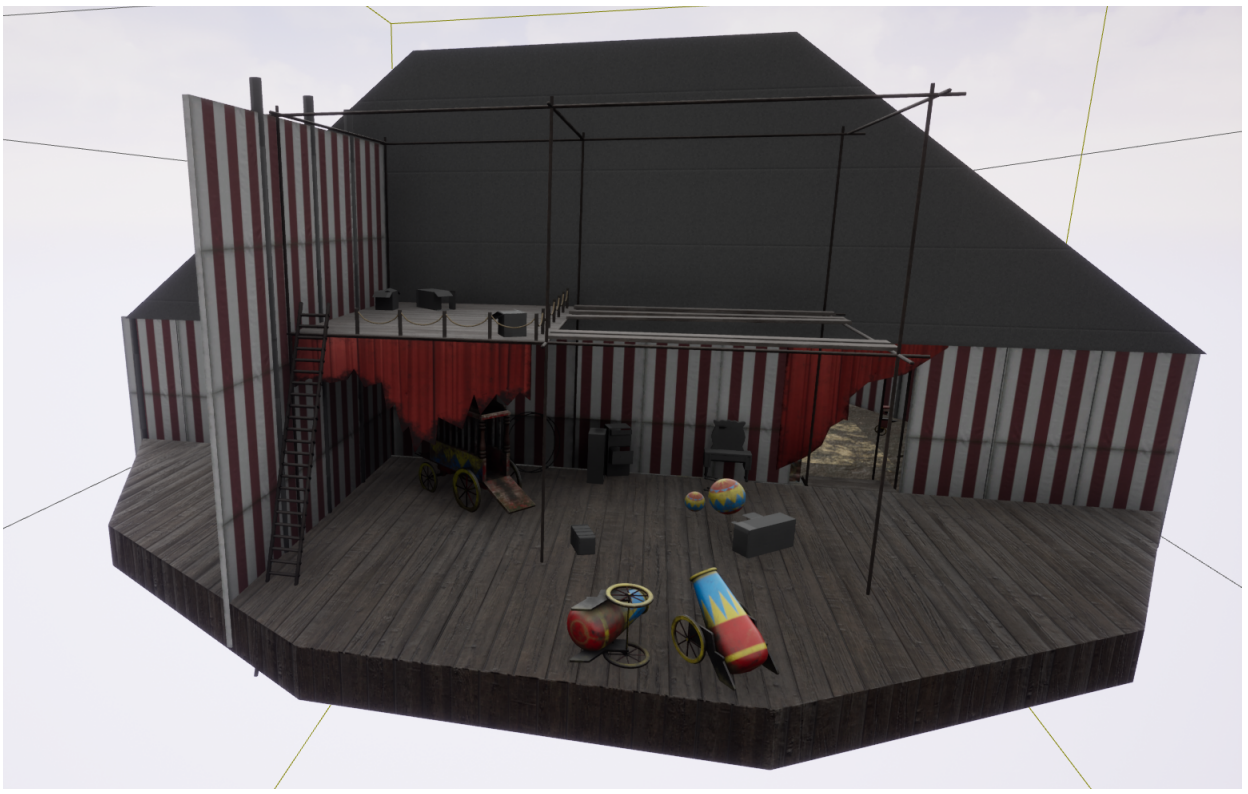


Figure 34.

The double stacked walls that you see were a deliberate design choice to emulate the high ceilings we see in circus tents (Figure 32). With these high walls however I was aware that visibility could become an issue, so chose to leave wall cutouts in the areas that could block the players eyeline. In the backstage area I still wanted to give an impression that the walls were there, so I scaled down the wall to create a sort of trim around the bottom edge (Figure 35).

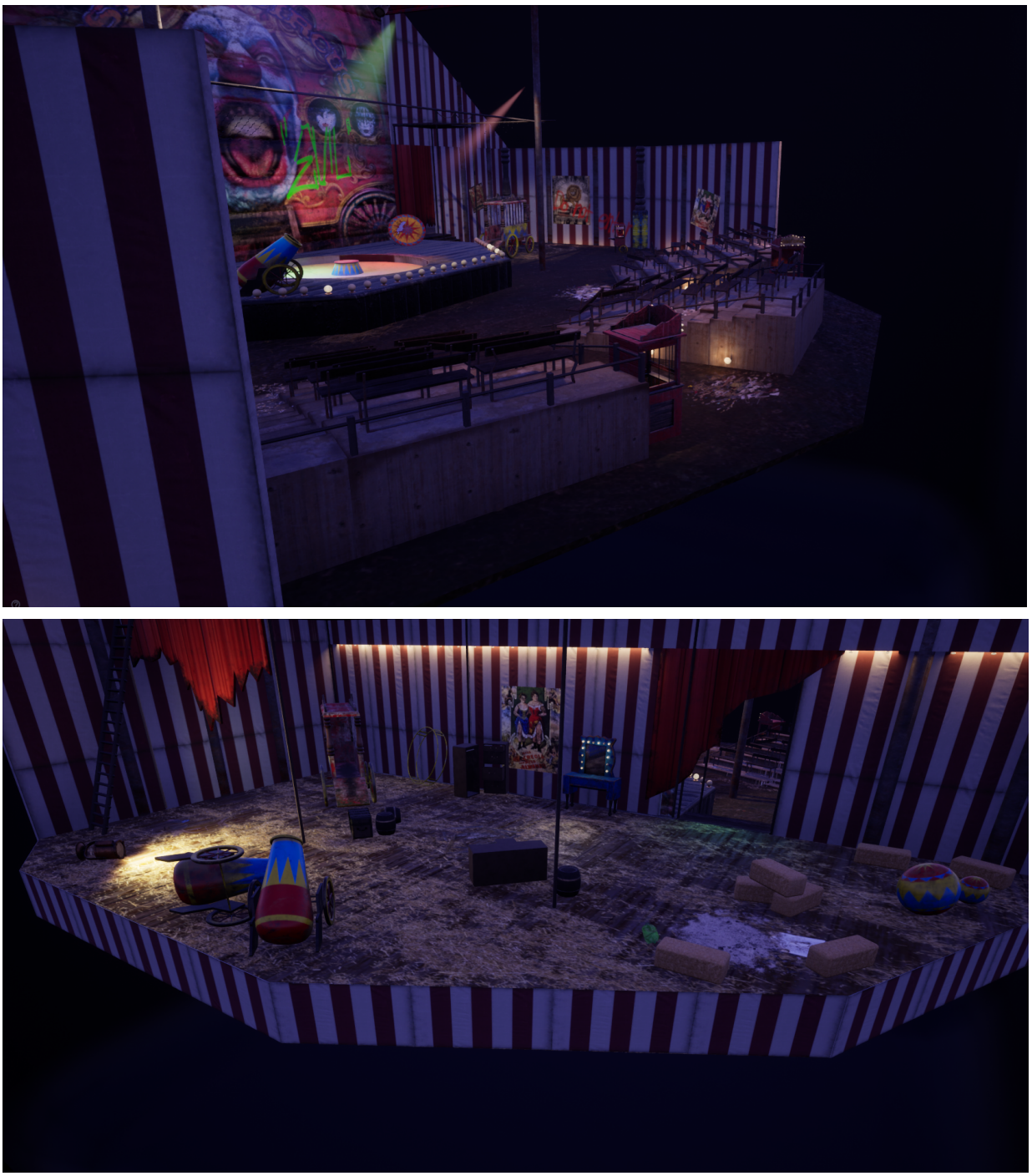


Figure 35.

WEEK 4: Texturing

I found the texturing process very interesting and artistically challenging. I used a combination of Quixel Mixer and Substance Painter to create my textures and found the UI very intuitive to use - likely due to my previous experience with Photoshop. I found the masking and layering to be a very effective workflow in creating unique textures. One of the very first textures I created was a unique wood texture that I turned into a smart material for future use (Figure 36). This texture was used on almost all wooden props in my level, each with slight tweaks, but it made a really nice base for me to edit the look of the texture and keep the visual style consistent within the level (Figure 37-38). Another feature of the software I found very useful was the triplanar mode, which I used on some of my circular props to avoid any seams.

Figure 36.

Figure 37.

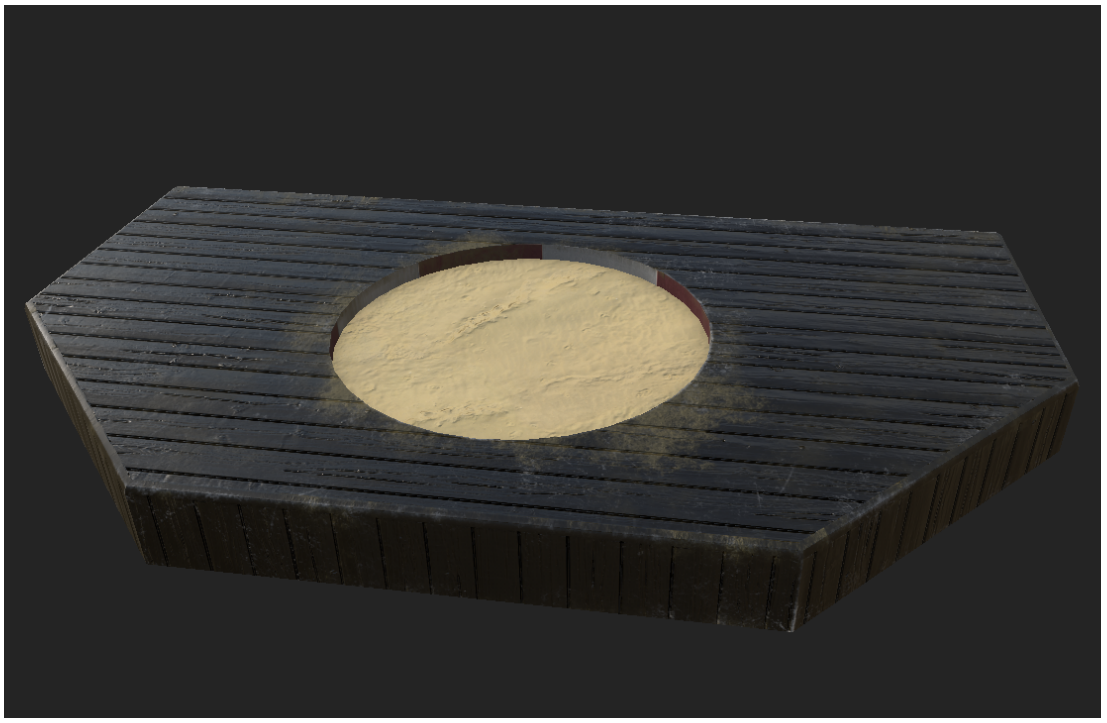


Figure 38.

For a few of my props I wanted to give them a simple, yet colourful geometric pattern that is often associated with the circus. An effective way to achieve this look was to go back into Maya and use the multi-cut tool to create these sections in the mesh (Figure 39). Once reimported into Substance Painter, I could then mask off each section in the desired colour (Figure 40). I also made sure to use the exact same colours among these props for uniformity around the scene.

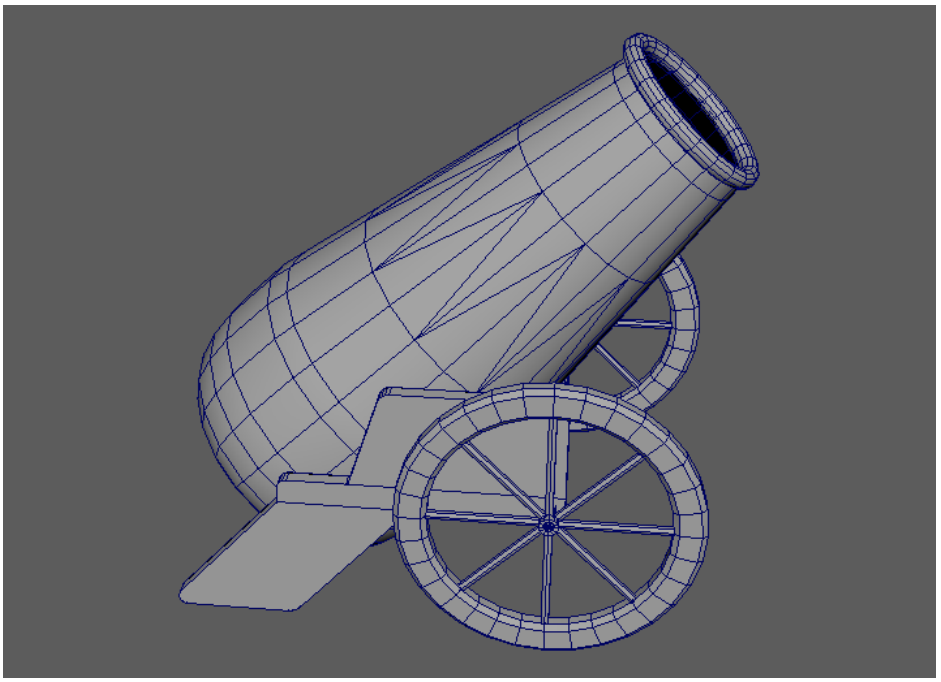
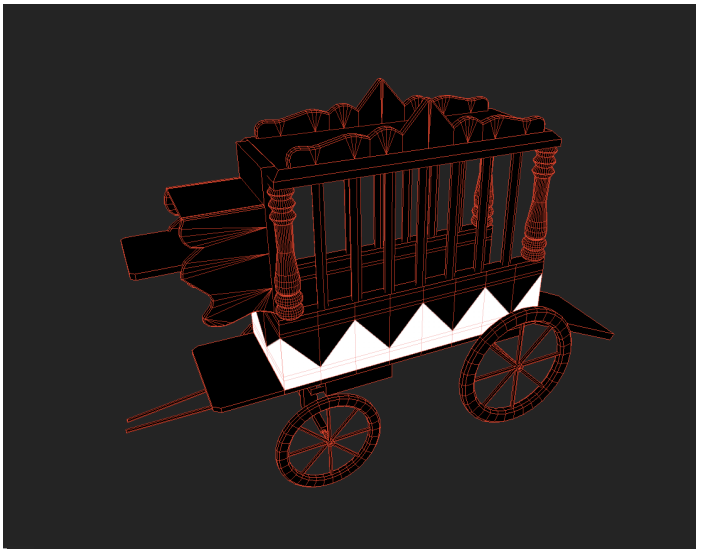


Figure 39.

Figure 40. Left - textured mesh.



Right - masked area in white.

Figure 41. - Textured meshes inside Unreal Engine.

WEEK 5: Lighting

I wanted the central focus to be on the stage, but with those lights alone the scene was too dark and it impeded the visibility of the other props (Figure 42). To remedy this, I increased the ambient lighting in the entire scene and to further add to the theatrical mood, I included more spotlights behind the seating to illuminate that area. This warm tint contrasted nicely with the cooler shadows. It did also cast a harsh shadow, but I feel that plays well into the mood of the level.

I liked the light spill of the spotlights into the backstage area and wanted to amp it up a little with a strategically placed point light, to make it appear as though it carries further. The fallen spotlight in the backstage area helps not only to brighten the scene, but also creates an uneasiness to the atmosphere as it contrasts so drastically with the rest of the level.

I was excited to experiment with the moveable lights within the scene (Figure 42), as I feel it creates a really effective shadow pattern coming through the net. In my first pass, the spotlights were far too saturated and were very jarring to look at. In my final version you will notice that the spotlights are much fainter but create a better harmony with the scene, while still introducing pops of colour (Figure 44).

Figure 42.

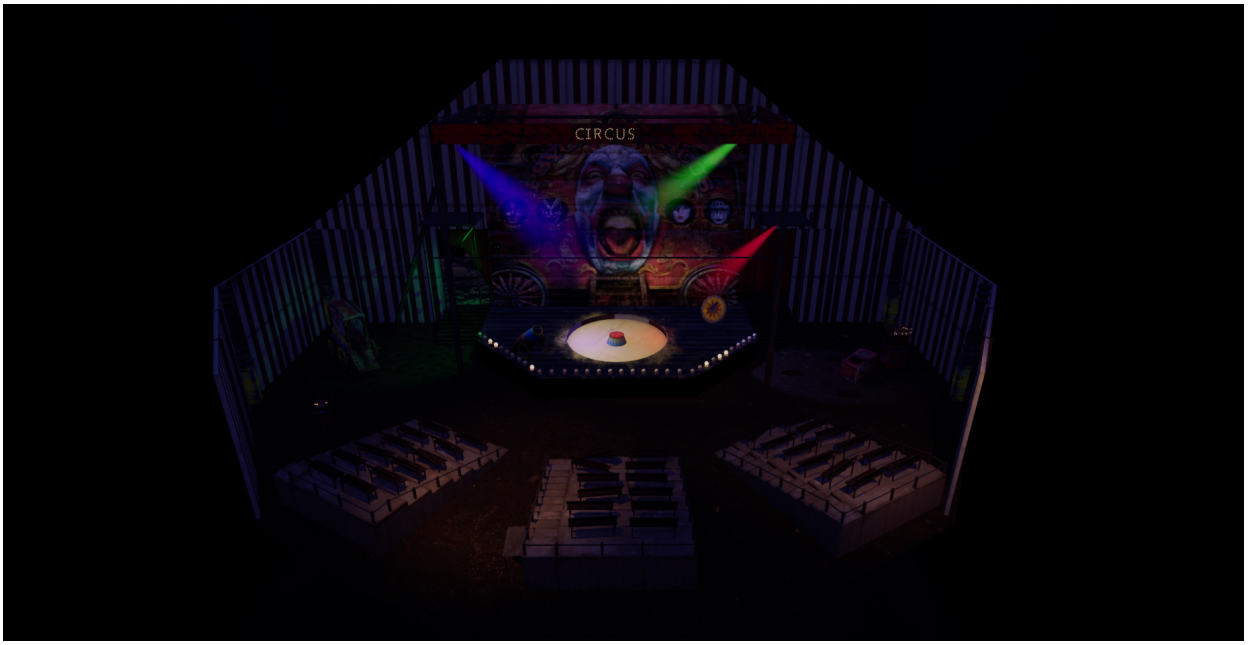


Figure 43. - First lighting iteration.

Figure 44. Final lighting.

WEEK 6: Blueprints/Decals

When placing my lights along the edge of the stage I really wanted to introduce a glow to the bulb. I previously tried adding a point light without a cast shadow which didn't make sense as the bulb itself was not lit (Figure 45). To fix this, I went back into Substance Painter and masked off the area that I wanted to glow and imported that into Unreal Engine. I then added that mask into an instance of the original material, connecting it to the emissive node. This allowed for a subtle glow, which in conjunction with a very faint point light looked more authentic (Figure 46-47).

Figure 45.

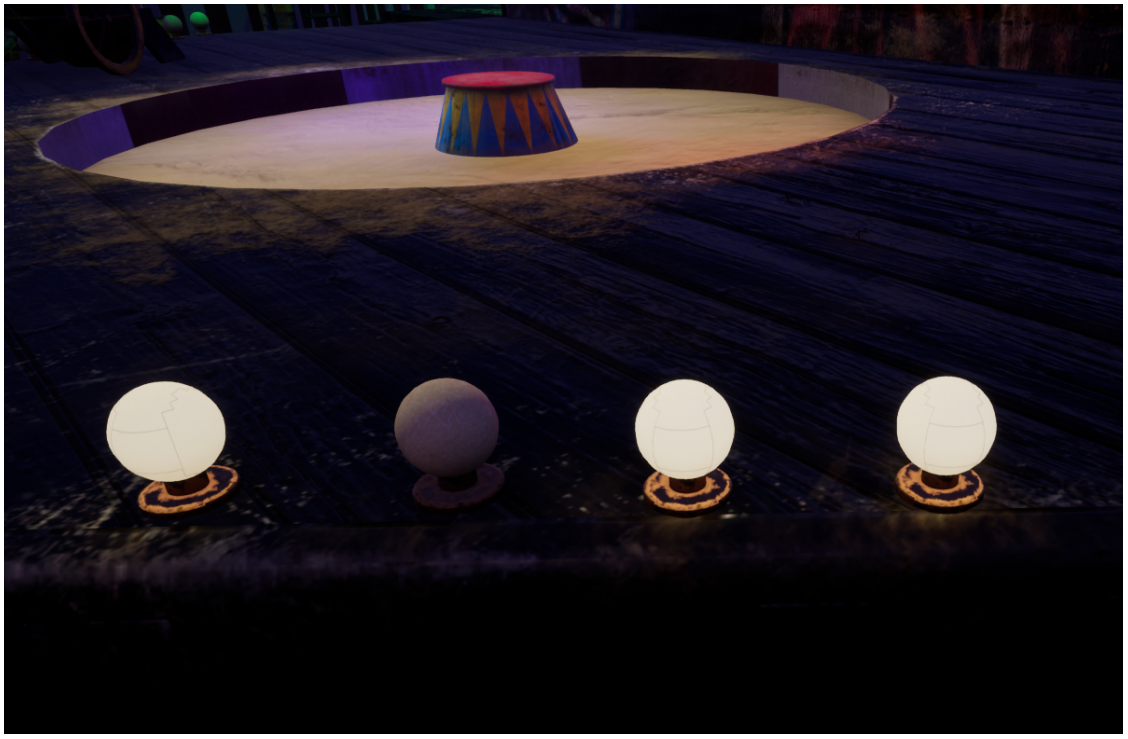


Figure 46.

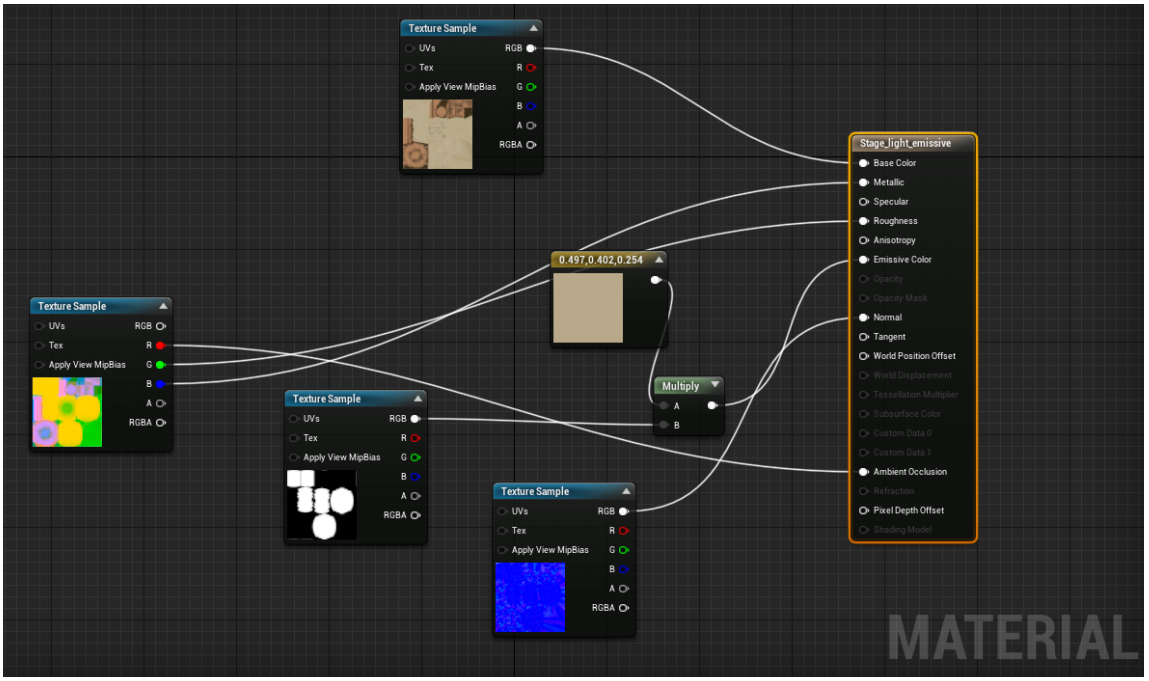


Figure 47.

In the final part of importing textures I found that when I added the wall material to the area above the stage, the scale was far too large. As it was a tileable material, I was able to add a texture coordinate node into each texture, which allowed me to scale the material to match the rest of the walls (Figure 48-49).

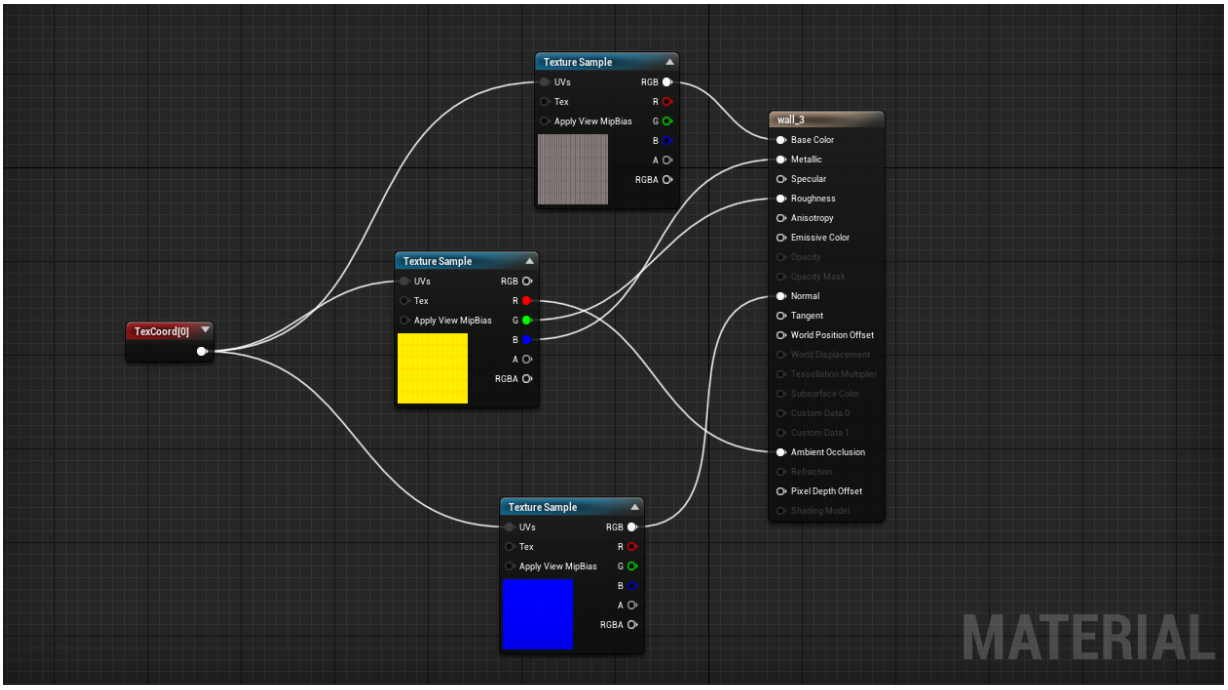


Figure 48.

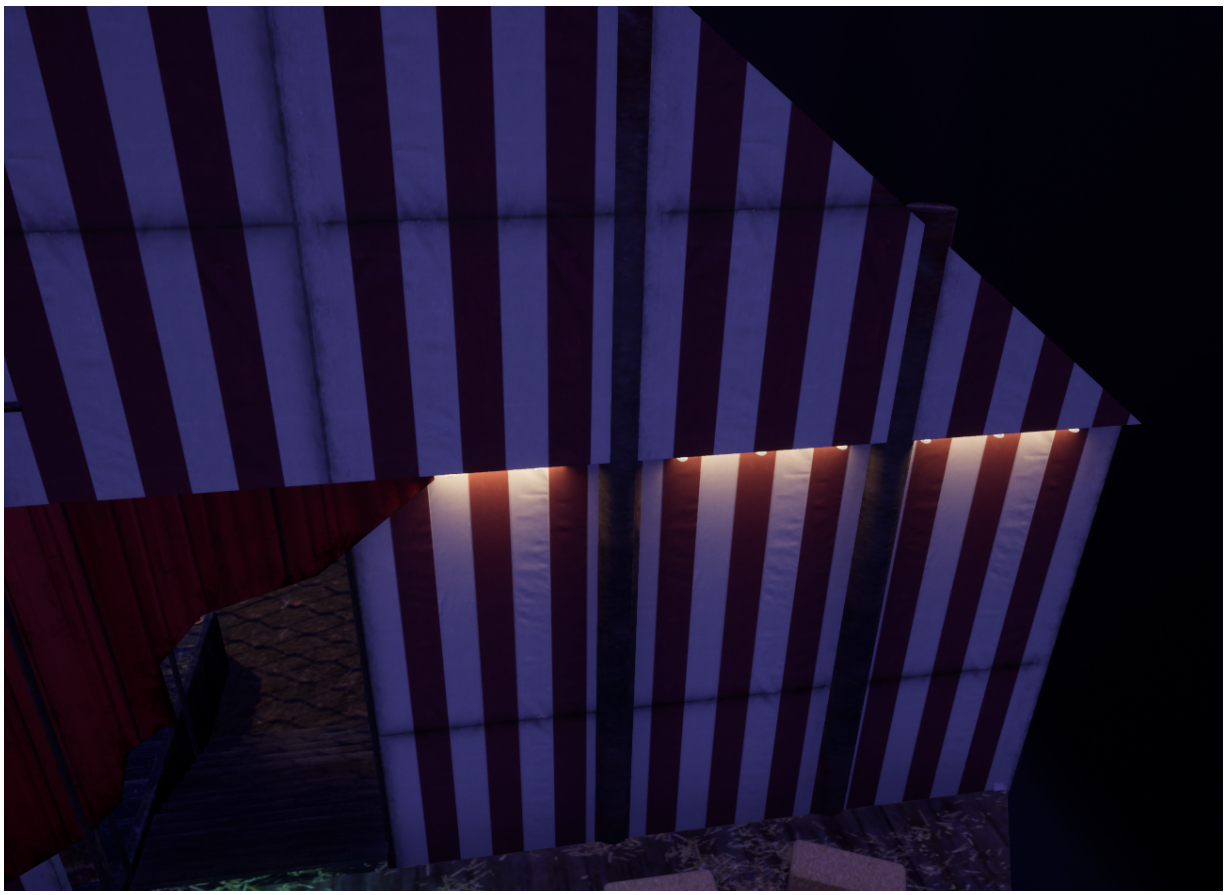


Figure 49.

Finishing Touches

In the final days of the project I went through my scene and dotted around some additional lighting. I added bulbs to several of the props to further highlight them, as they previously felt a little lost in the darkness. The lights used were duplicates of those that line the stage, with just the scaling edited. I found these small adjustments to the scene were very powerful and created nice pools of light that would draw in the player's attention (Figure 50- 52).

Figure 50.

Figure 51.

Figure 52.

I also added a number of decals to the level to further enhance the abandoned feeling, such as graffiti, rubbish debris, cigarettes and decayed posters (Figure 52). The process of applying the decal is similar to any other texture but also includes an opacity mask (Figure 54). I find decals to be an excellent way to add additional detail to a level at a low cost while also enhancing the character of a scene (Figure 55).

Figure 53.

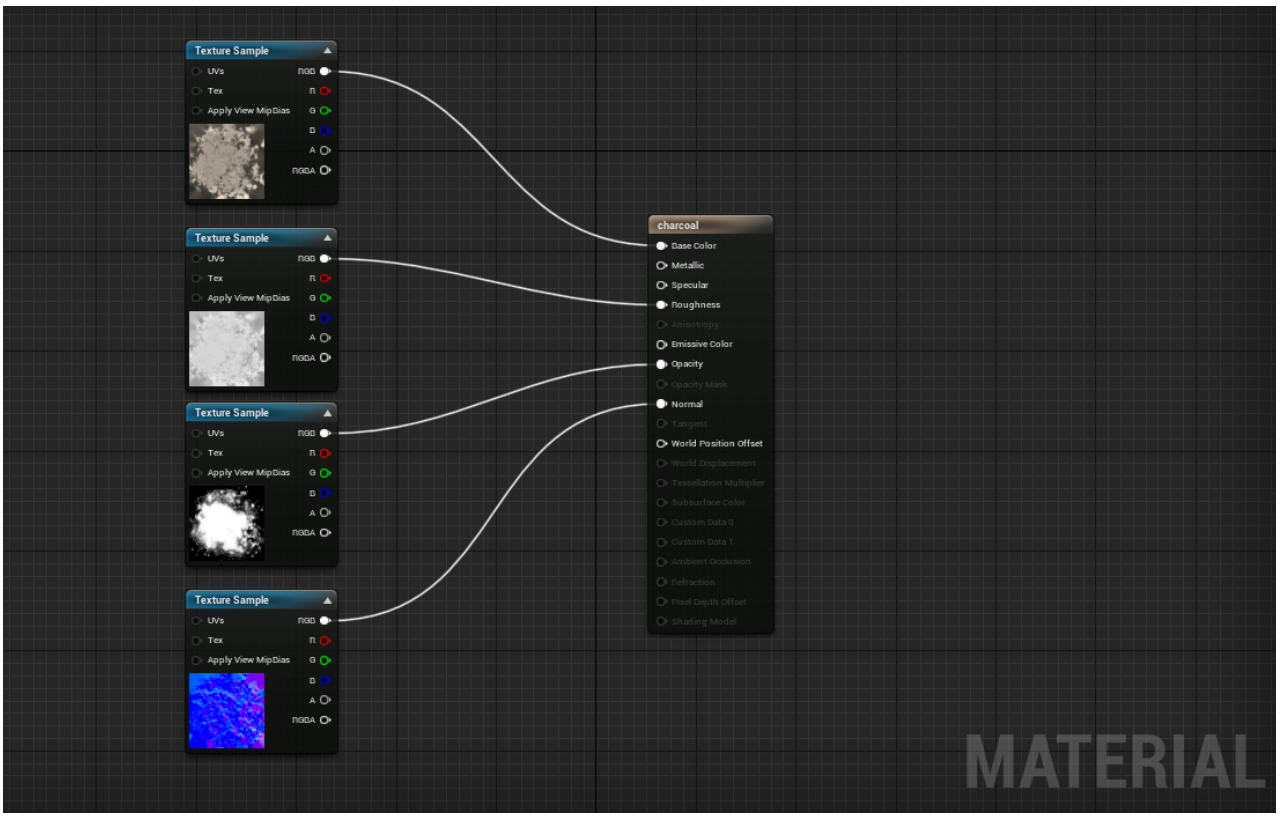


Figure 54.

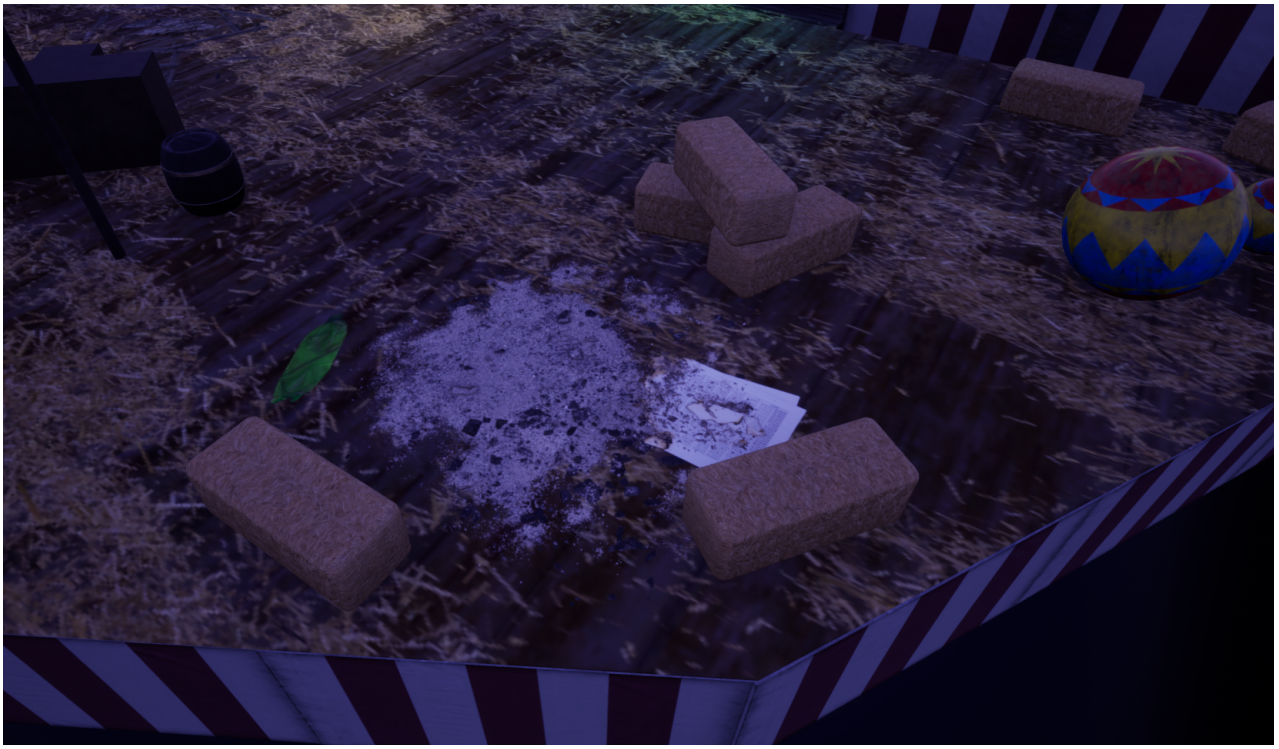


Figure 55. Decals within the level.

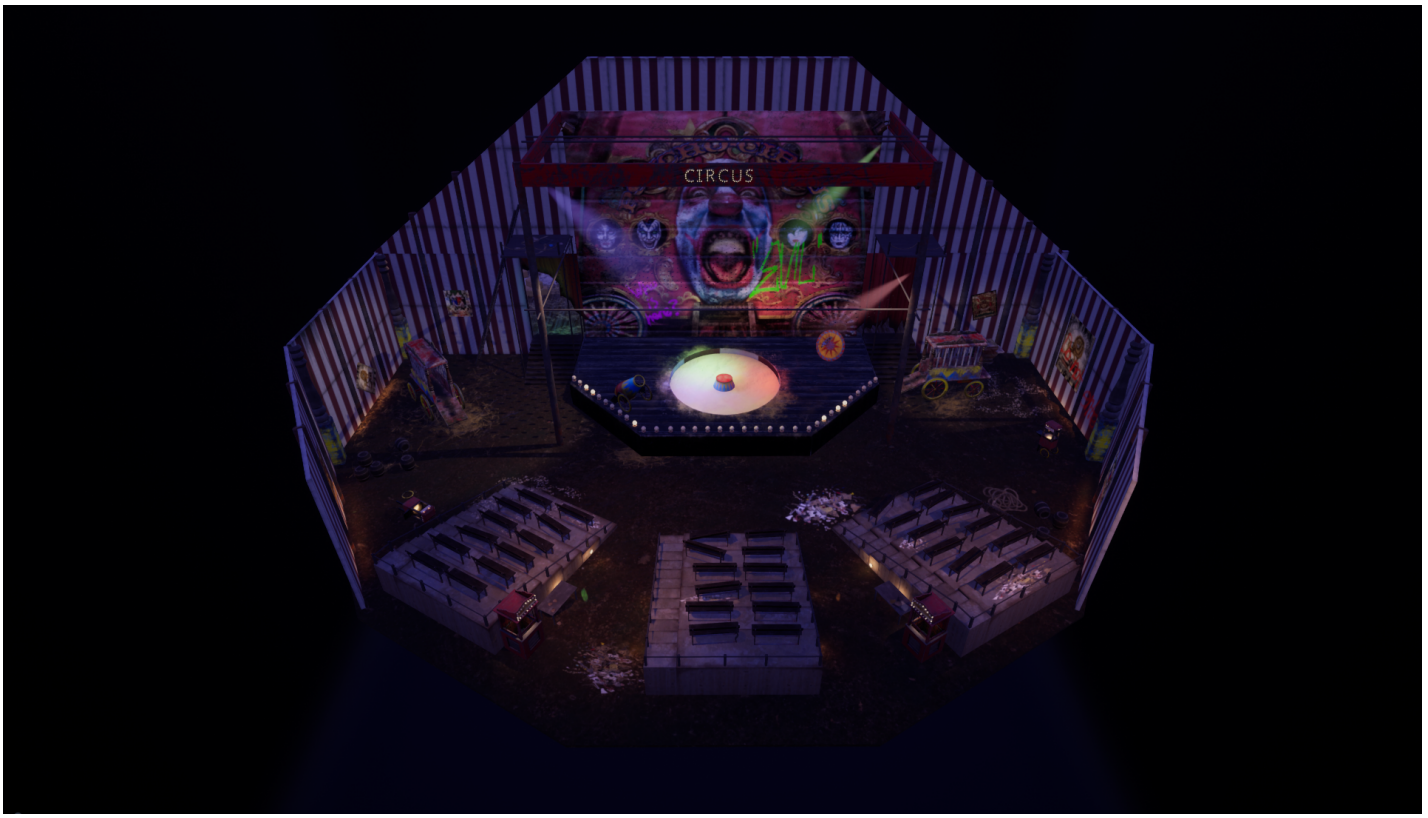
Conclusion

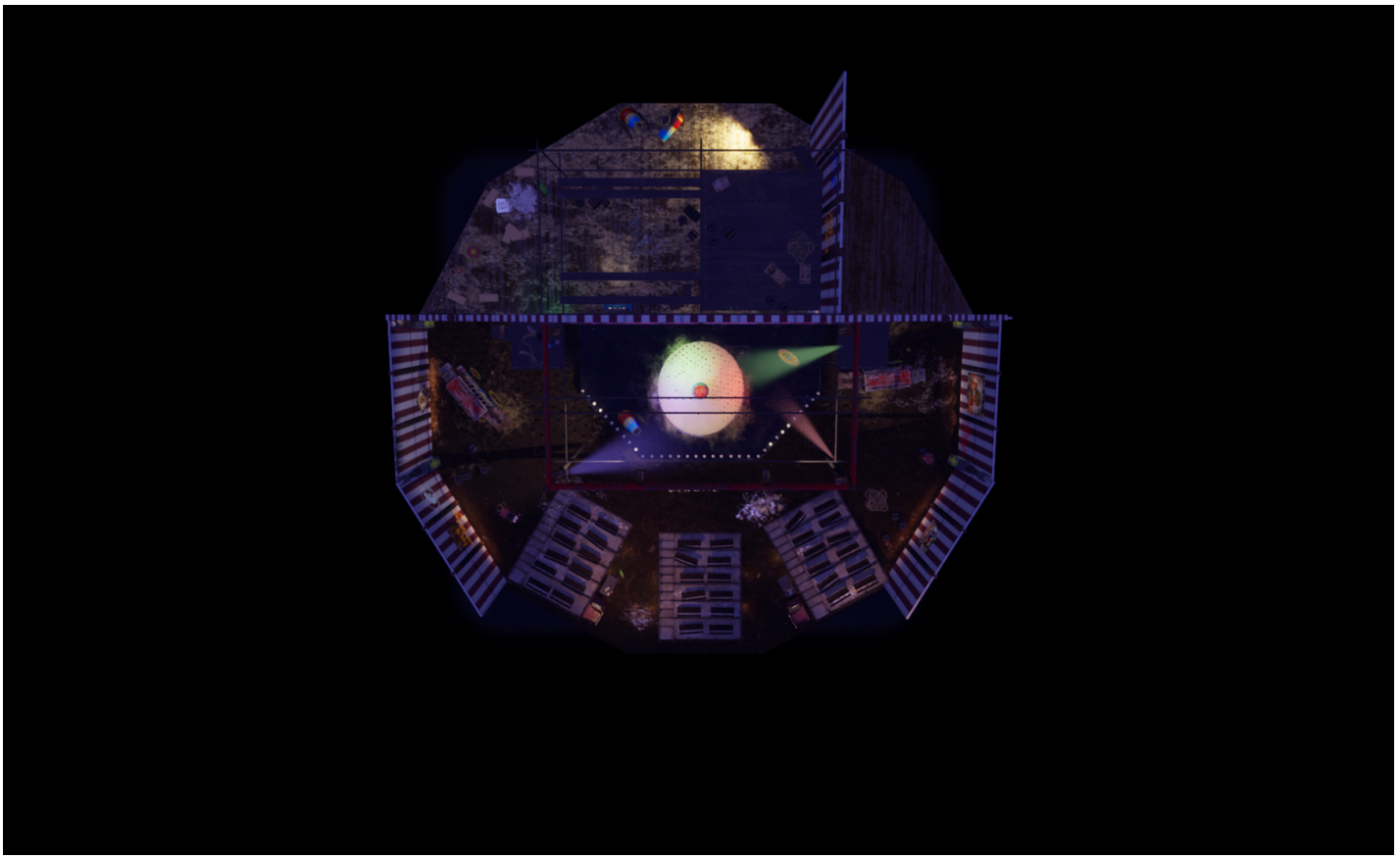
As someone who started the course with no 3D experience whatsoever, I feel that throughout the last six weeks I have been able to learn the foundations of each software package to a basic, but competent level. Being able to go through the entirety of the production workflow means I can now pre-empt the next step and plan ahead better.

If I were able to go back and re-do the project there are several changes I would make. The first I have previously mentioned - that I would use a tileable texture on the soil floor of the tent for better control once in Unreal Engine. The second would be to create the fabric folds of my curtains at the mesh stage, instead of using a flat plane and imposing a pleated material on top. I feel it would have given a more convincing look and a better sense of movement in the level. Lastly, I would have liked to delve further into the use of blueprints. Perhaps making some planks fall down or the curtains move in the wind, to increase the level of suspense.

I find all the techniques I have learned over this first module have given me a good foundation to go on and create realistic scenes within the constraints of a mobile platform. I feel I have developed the mindset of creative problem solving and now have a bank of knowledge and skills to achieve an attractive, low budget, yet smooth running video game level.

Final Shots:



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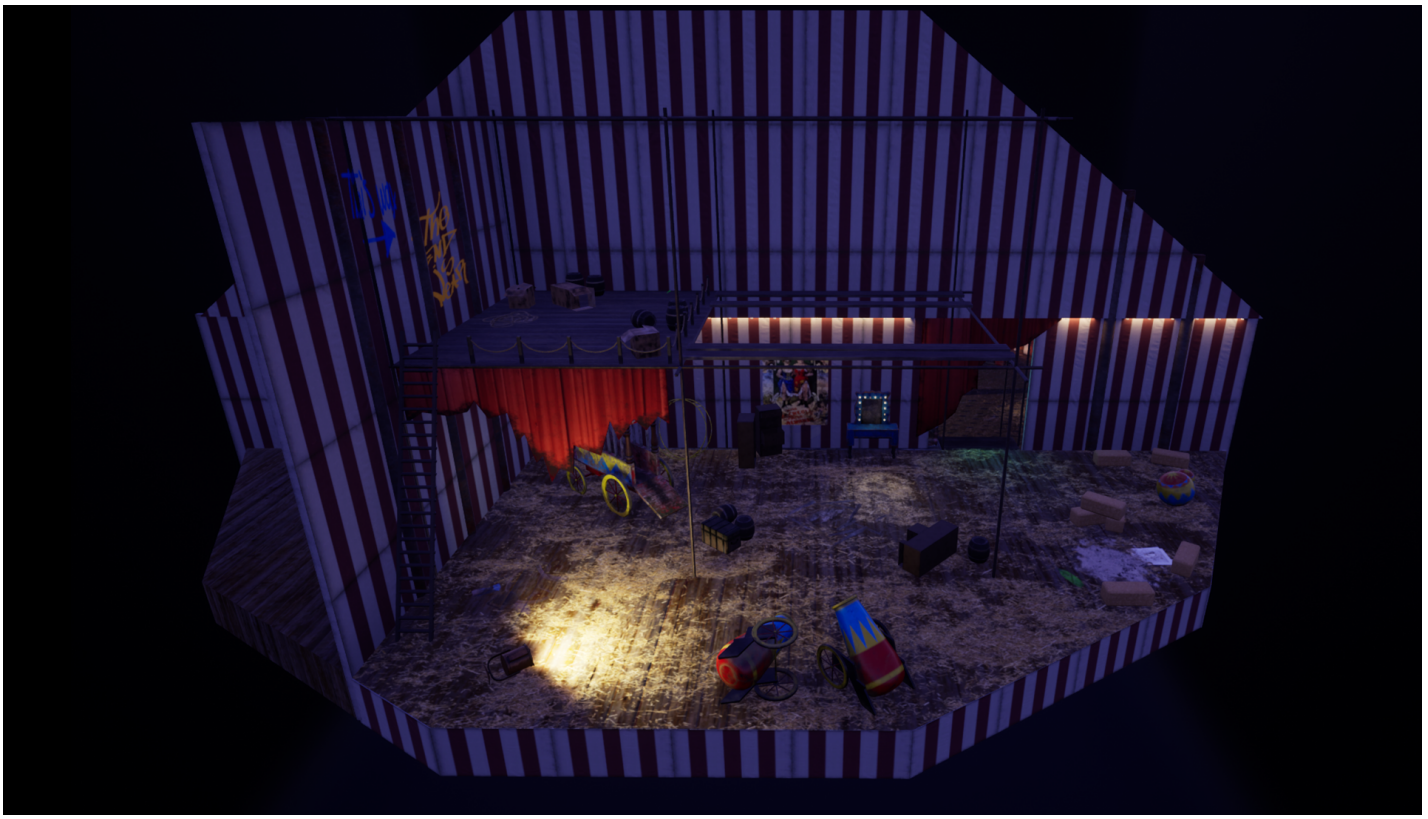
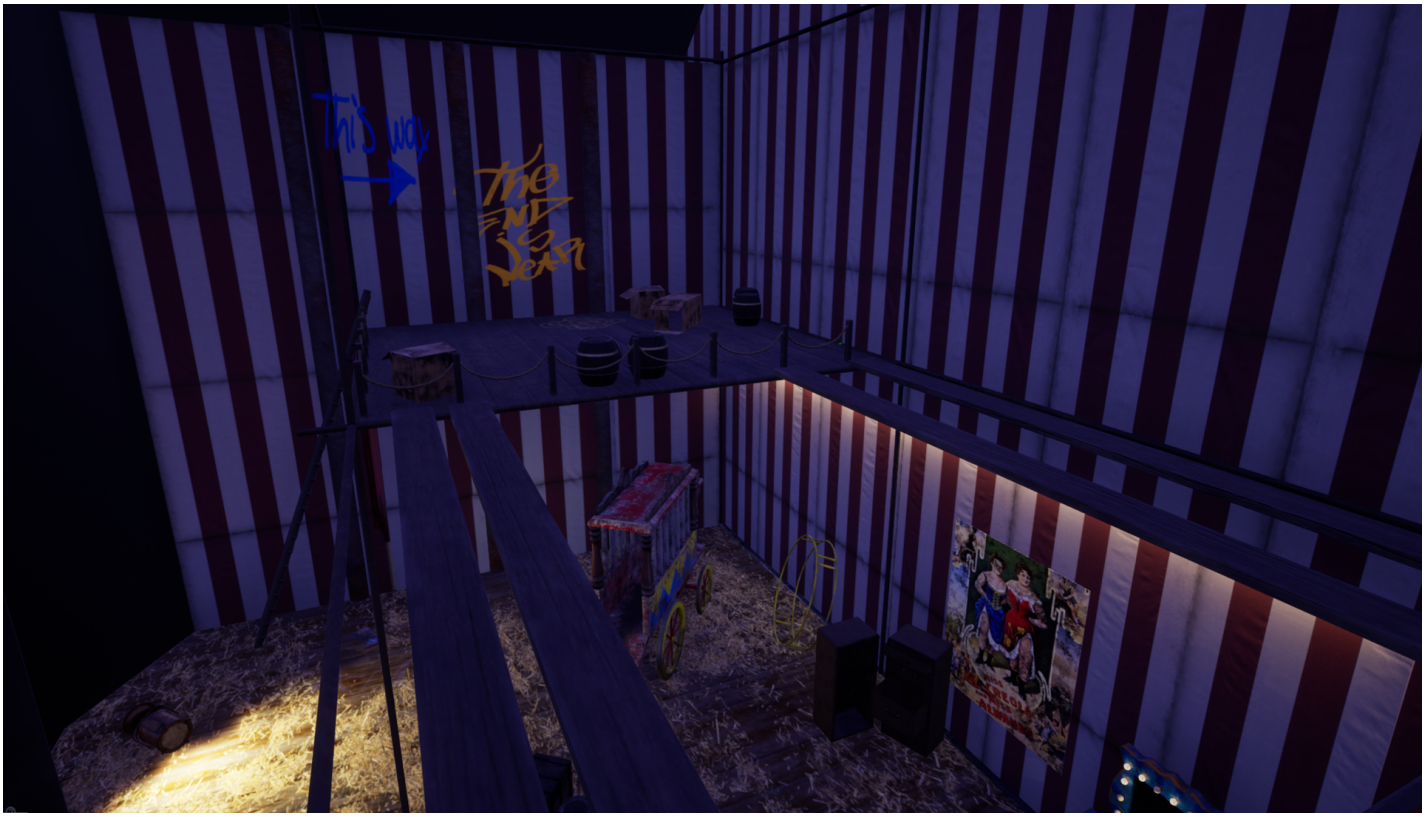
watching

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Reference List

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Fig. 0
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Fig. 1
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Fig. 2
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Fig .3 - 6
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Fig.7
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