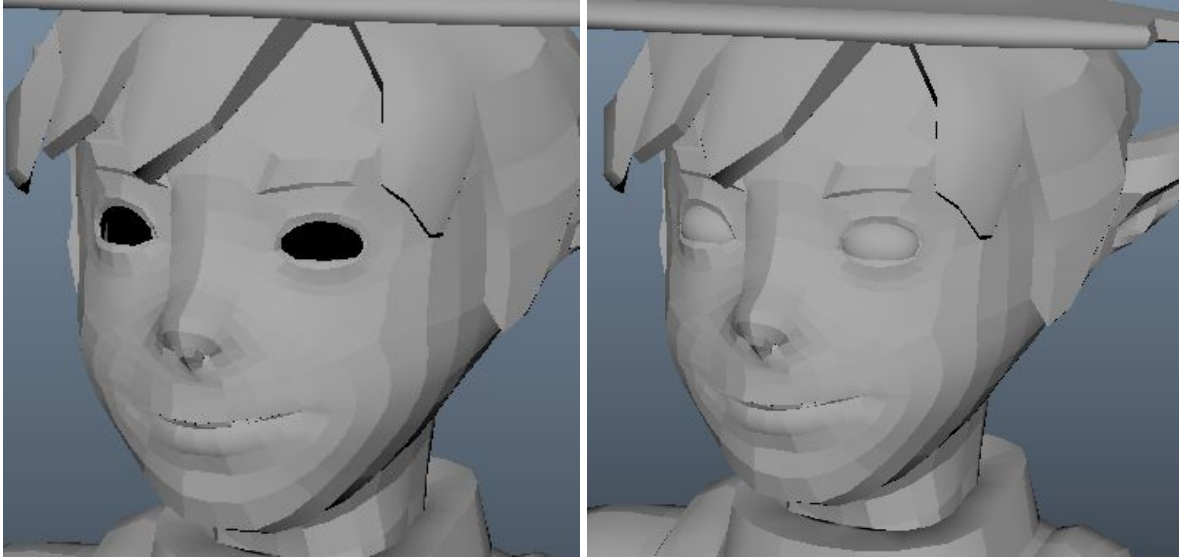
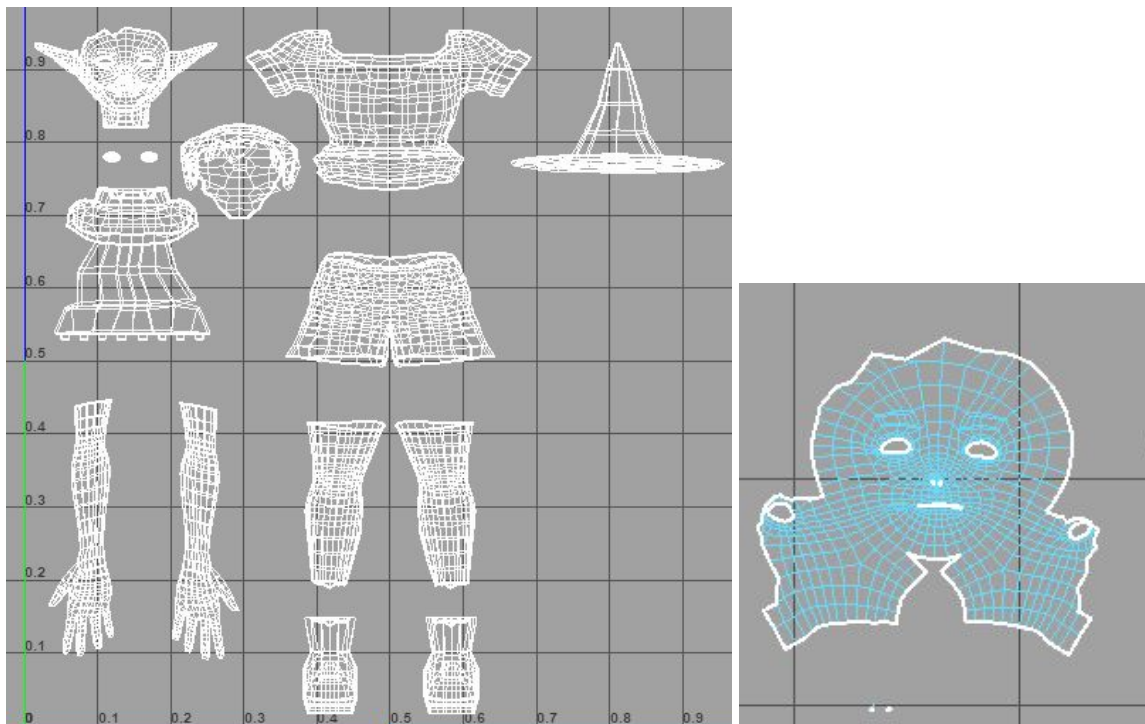


## A2 Documentation

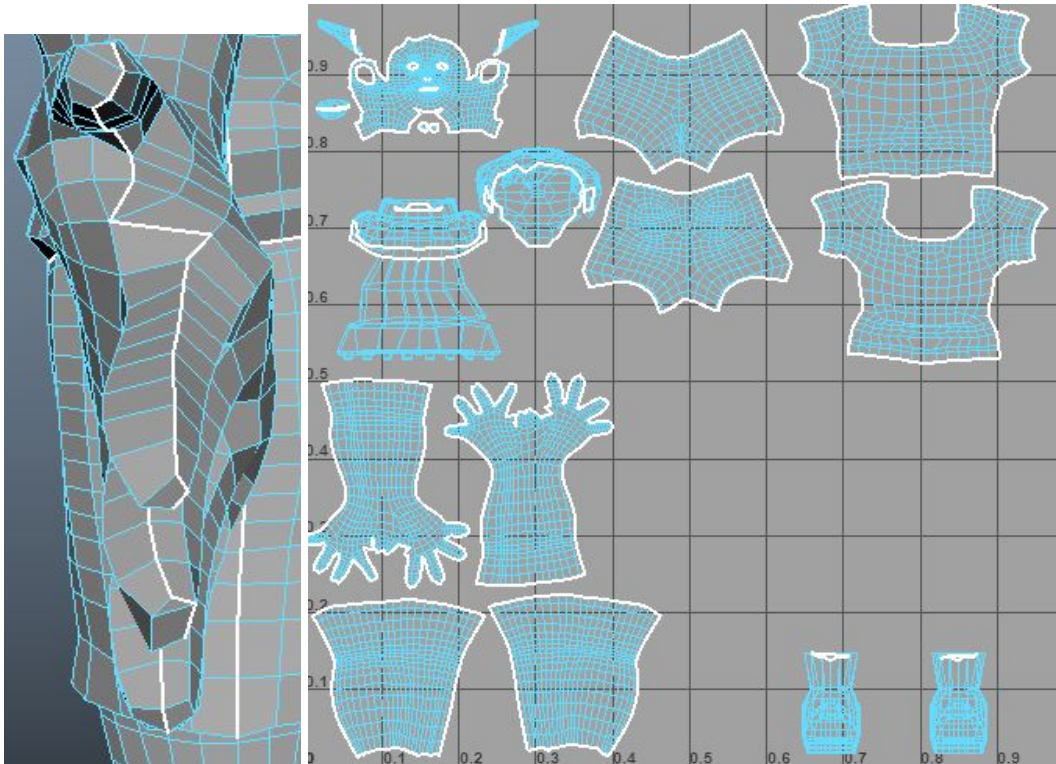
### UV Mapping



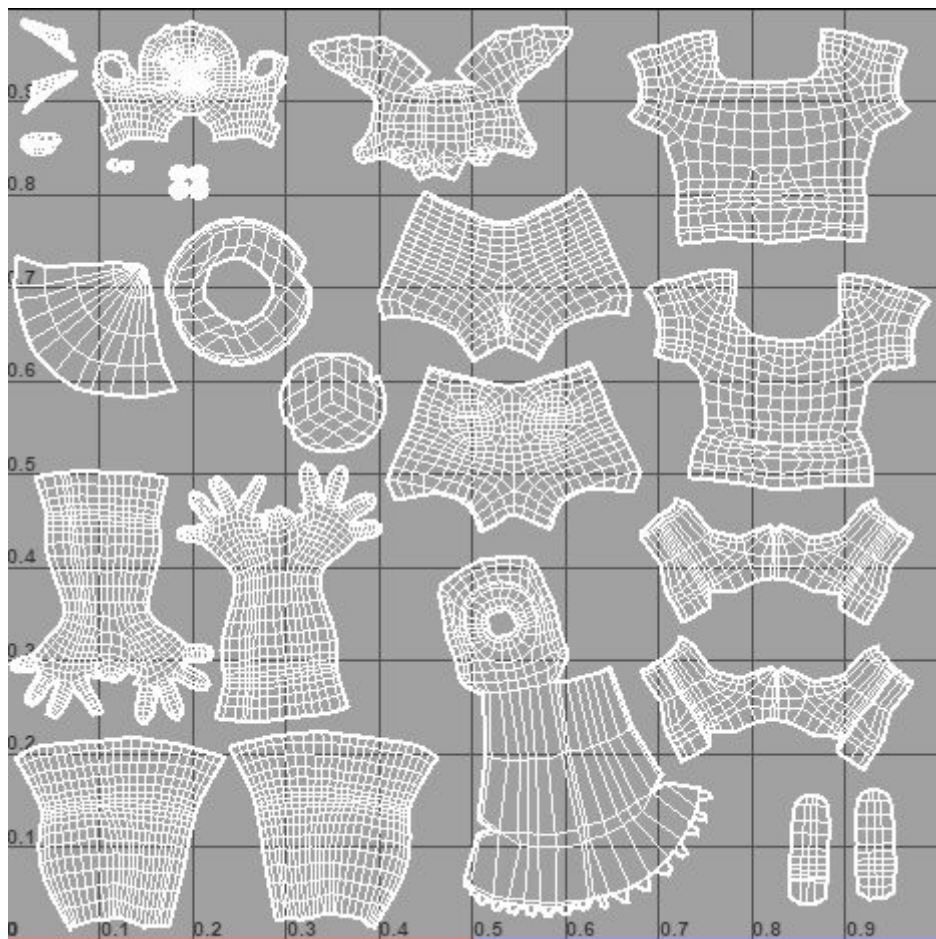
First I deleted the faces filling the eye holes, and instead used two ovals as the eyeballs.



I separated all segments of my character, unwrapping the face first by cutting a line vertically through the neck and a small cut at the chin.



I first unwrapped the arms and legs, then the shorts and shirt which I split in half, following the tutorial notes.

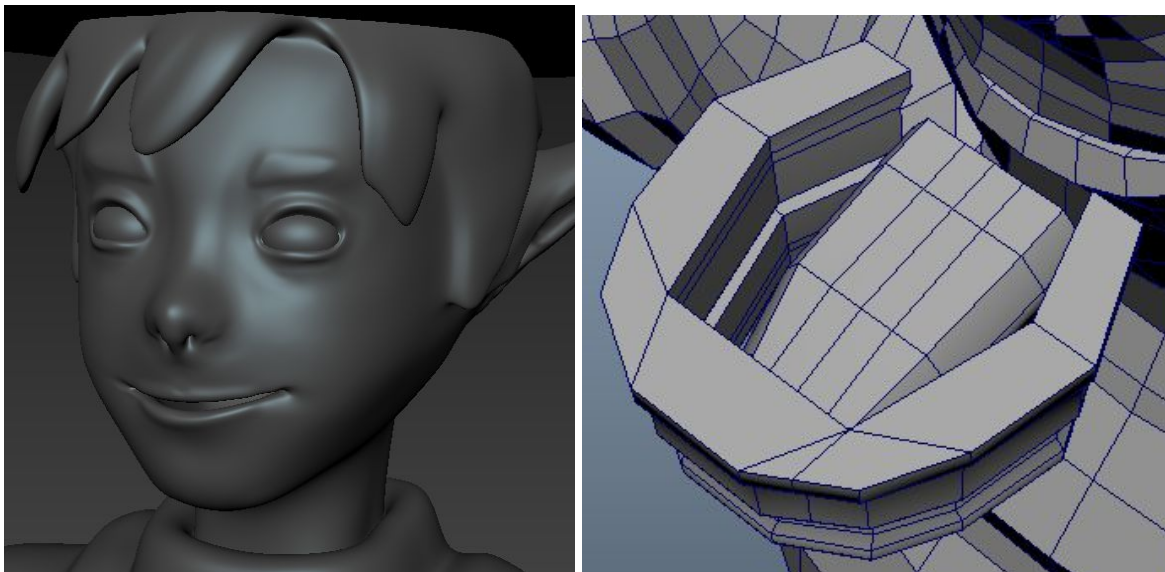


Everything when laid out and unwrapped.



I then checked the density of my UV maps, which I think is quite consistent, apart from the brim of the hat which I fixed by making it bigger.

### Detailed Sculpting

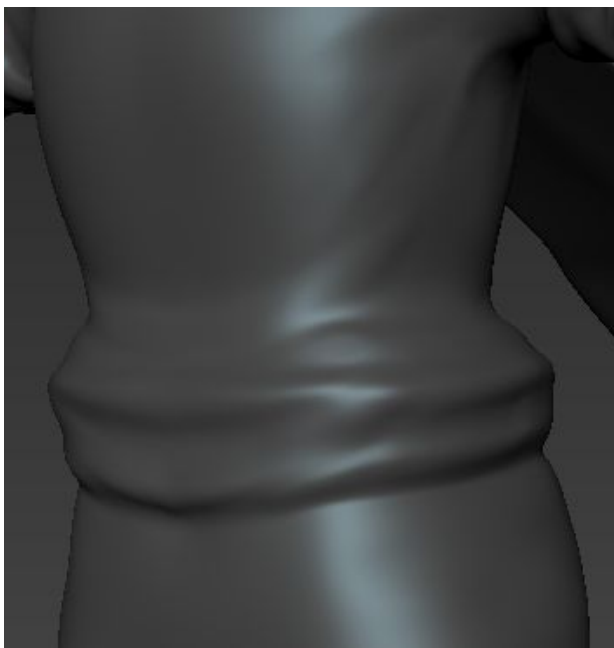


I initially started modelling the face, but then went back into Maya to add two sets of teeth and a tongue to put into the mouth socket.





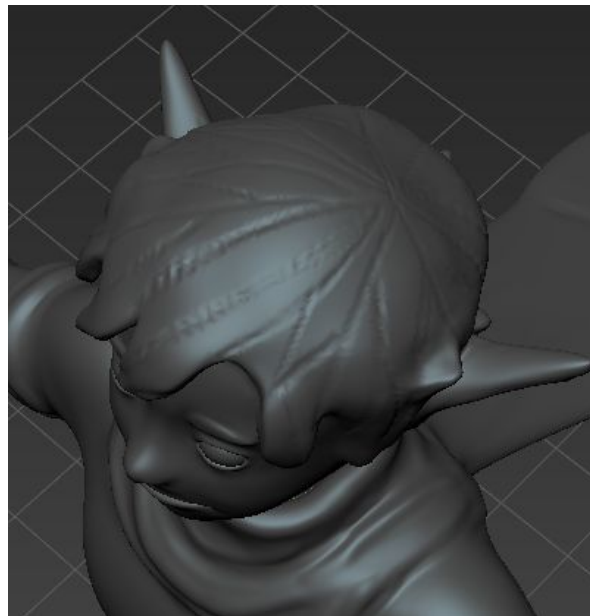
After importing these back into Mudbox, I began sculpting fabric wrinkles into his scarf, and adding details back into the face.



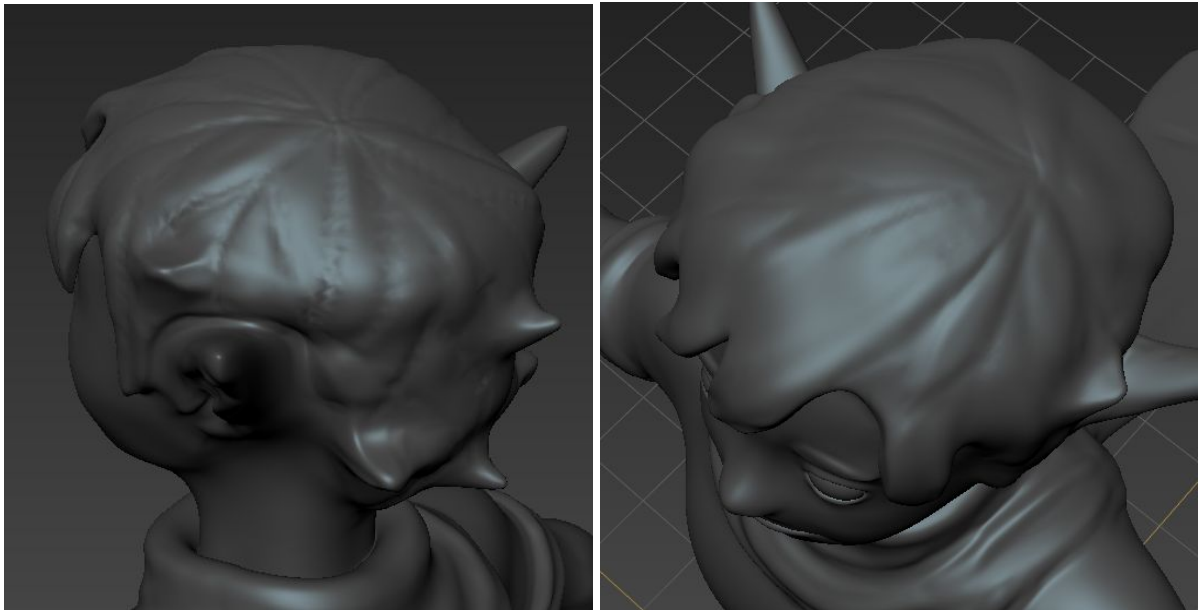
I then added wrinkles in his shirt, around the waist and under the armpit.



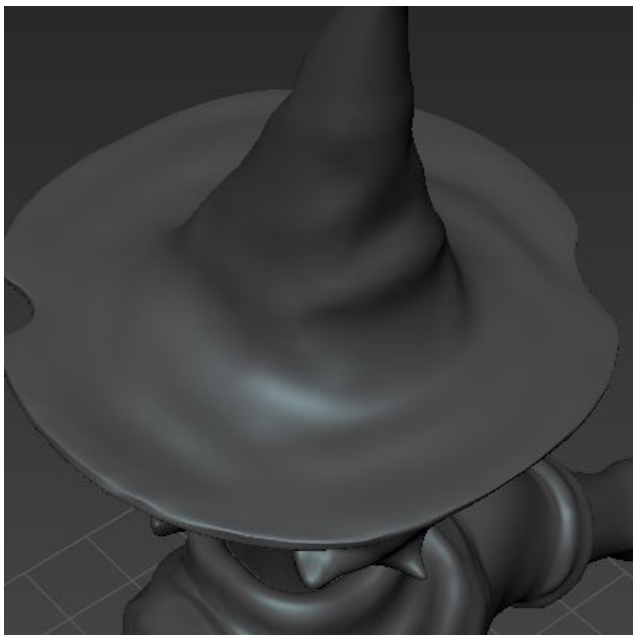
I added small wrinkles in the shorts, near the flare at the bottom and around the crotch. Next I sculpted fingernails and the knuckles, keeping it rather simple. After I sculpted the fingers I also added back muscle details in the neck, biceps, arms, and the legs.



I started sculpting the hair, using the flatten tool to make the hair sharper and more stylised, and adding spikes of hair using the grab tool. Next I used the wax tool to draw hair lines, directed towards a hair parting near the centre of his head.



Using these hair lines, I used the sculpt and wax tools to add volume to his hair by raising and lowering areas of the hair. I then used the smooth tool to make these lines more subtle.



Lastly I added a few crinkles in the hat, and sculpted the boots into a better shape.

## **Painting & Texturing**



Importing everything into Substance Painter, I immediately ran into many problems. The UV map doesn't match my model, leaving empty gaps, and some are misplaced (like the scarf, which is too much to the left). The hat is the worst, where the brim is completely off. My guess is that I accidentally sculpted everything onto the old UV map (without the teeth/tongue).

Additionally the displacement map is super severe looking, which look like scribbles on my model instead of additional detail.



After asking a tutor for help, he helped me rearrange the UV map to fix the issue with the hat, and helped me to import the updated UV map to include the eyes, teeth, and tongue. The severity of the shadows was reduced heavily, to allow for extra detail.

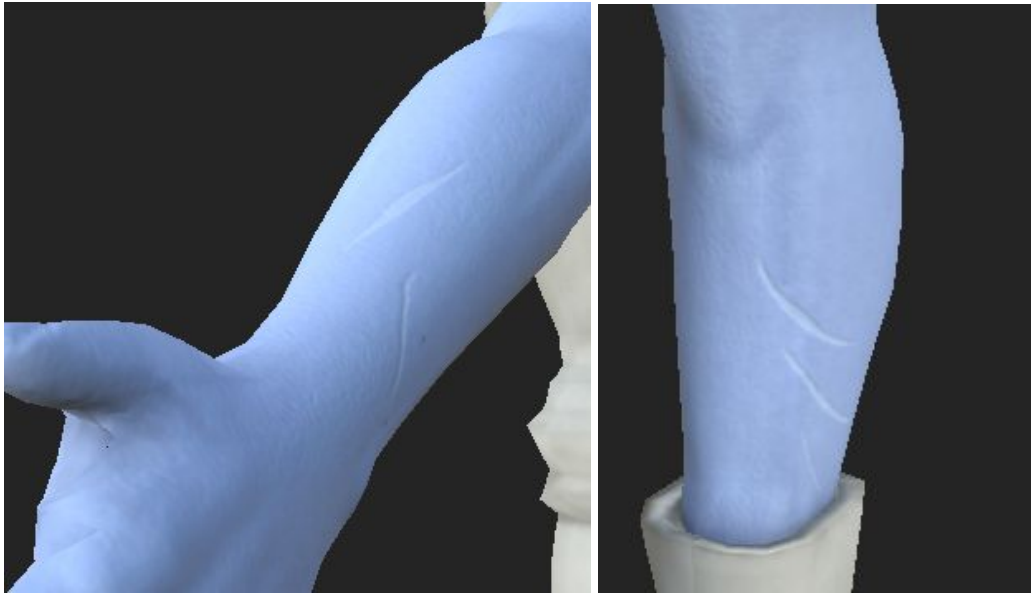


Next I began to add colours onto my model. I used the smart material 'Skin Human Simple', then tweaked colours of the layers: base, dots, top colour, and AO. I brought these all into a more blue tone, and hid one of the 'dots' layers, and the veins as I wanted my character to be more stylised, and veins would be too realistic.



I followed the week 6 tutorial to add a colour variation layer using the HSL perceptible, choosing a purple tone. Using a mask in a fill layer, I dotted on freckles and moles with a variation of small brush sizes, then applied the blur filter on top. I didn't adjust the height, as I wanted the freckles and moles to be on the same level as the skin.





Next I used a mask on a fill layer, using a light blue colour (as from personal experience, scars can appear white against skin, and also because I thought It'd look better than darker blue scars). I adjusted the height slightly lower, and added a blur filter. Then I began to draw lines onto the skin, then using a 0.1 size brush to brush at the edges to make it look more natural. I tried to add a variation of thin and thick scars, though I didn't want to go overboard as my character wouldn't have too many injuries.



[\[source\]](#)

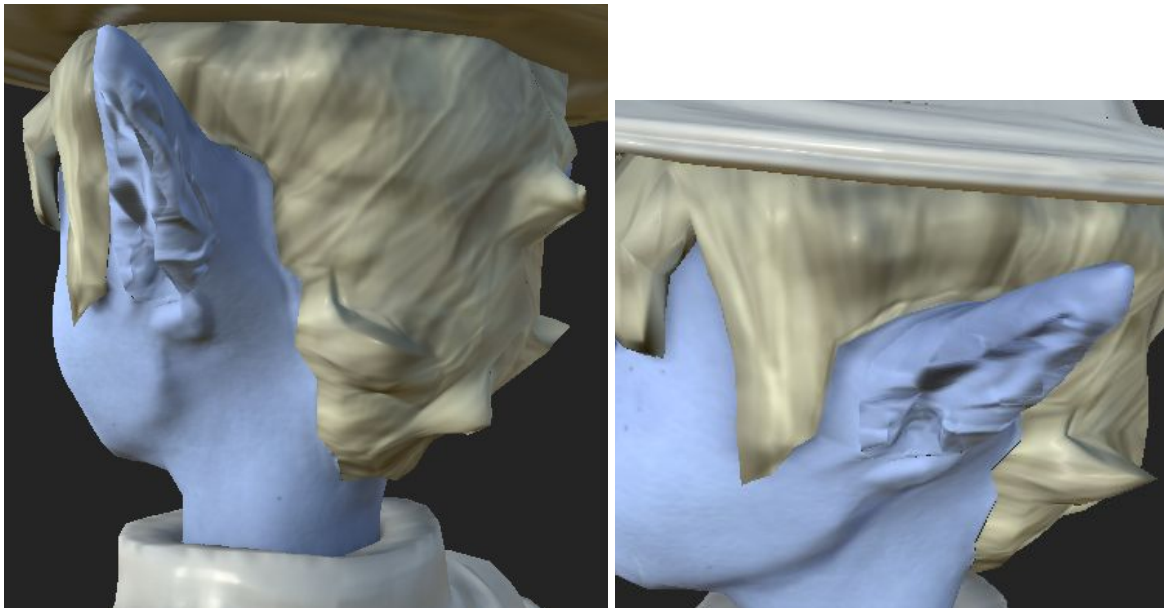


Next I used a fill layer to draw on the lips, using a low opacity brush and a dark purple colour to make the lips more natural. I used the UV map to properly blend the outlines of his lips. Next I used a layer with lower roughness to add wetness to the lips, shine to the tip of his nose, and in the inner corners of the eyes and the eyelid.

I also used another fill layer to colour in the eyebrows.



Next for the hair, I first began by following the tutorial notes, though I knew that I wanted my hair to look differently to the example. I generally liked the shape of my hair, and didn't want to change it too much, and I lacked the 'hair planes' to add additional texture to the hair. So I first added a fill 'base' layer, of a pale beige. Then I added a dark layer, first adding the 'clouds 2' procedural. When I wasn't fond of this, I watched this [youtube tutorial](#). From the tutorial, I used his method of using the 'Fur 3' procedural, then rotating it and scaling it to make it look like hair. He also duplicated the layer to make a highlights layer, which I did too, but simply changed the offset and scale of the 'light' layer for variation.



I also followed the tutorial and changed the height of both light and dark layers, to make the hair strands stand out a bit more. Going back to the week 6 tutorial, I added a 'Levels' to the light layer, though the effect of this made the shine more isolated and in small lines, so I deleted this.



From drawing on the eyebrows, I then had the idea of drawing on small details and 'lines' onto my character to make him more stylised. So using a dark blue, I drew around the eyes of his eyes to mimic a cartoon-y lash line, and drew small dots on the edges of his mouth. I also drew a few small lines onto his ears, which unfortunately had become super distorted.



Inspired by this 'hand-drawn' method, I then turned on the symmetry tool to draw extra depth and shading onto his skin. Above I've attached images of before and after, as I feel that the extra shading and lining adds a lot.



I added extra shading all over the skin, for muscle definition and shade. I used the line layer to colour on his fingernails, deciding to give him dark nails for contrast.

I also went back to the shine layer, and added shine onto the nails to mimic nail polish.



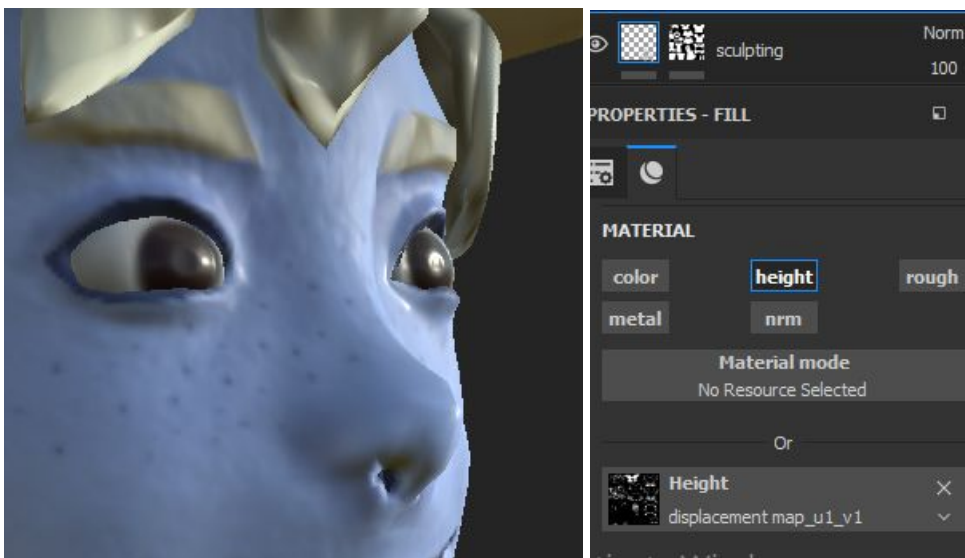
Next I simply drew on black circles for his eyes, adding a roughness layer for extra shine, and a height layer to push the pupils in slightly.



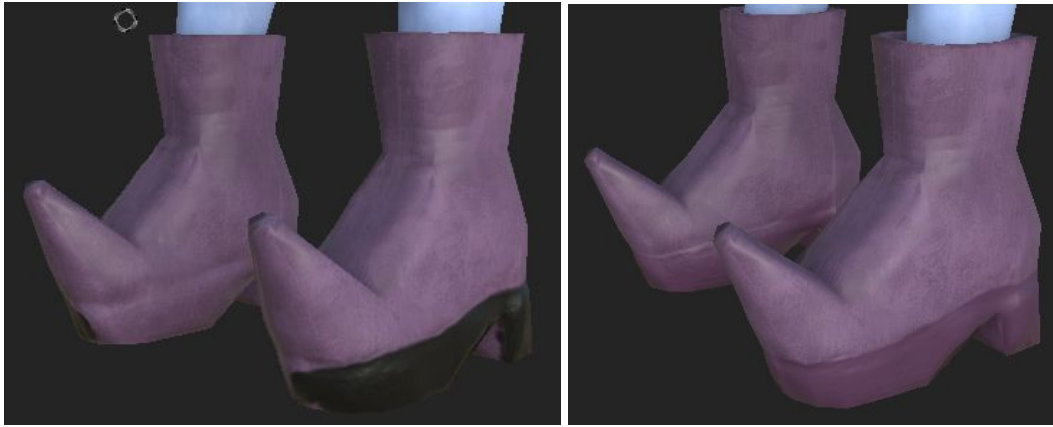


While doing this I realised that the left eye had a weird line on it, and assumed it was due to an issue with my occlusion map as it looked like an odd shadow.

I attempted to paint on the occlusion map to fix it, using the steps on [this page](#) which included: Adding a channel for AO, and using a fill layer to paint over and replace parts of the ambient occlusion map.

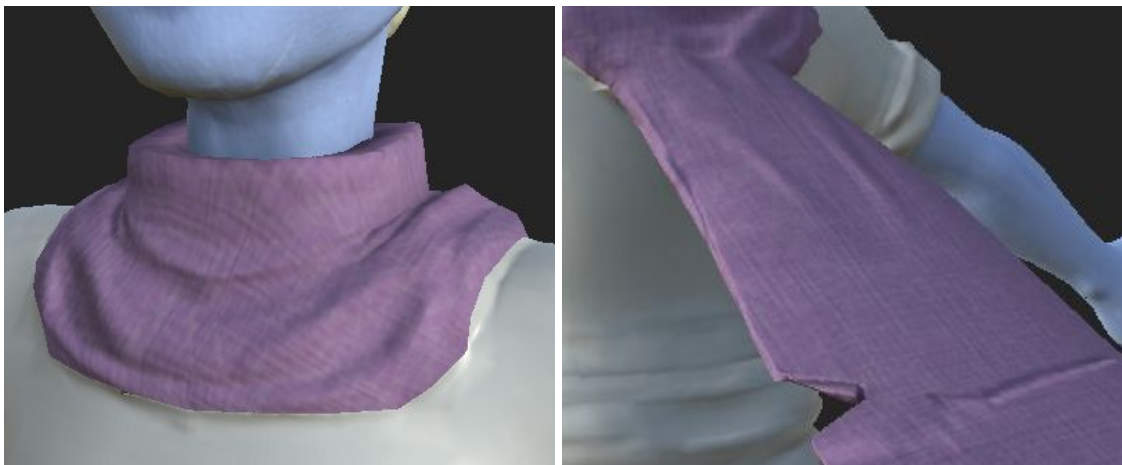


However when this didn't work I hid every layer to find the issue in my 'sculpting' layer, which held my displacement map. So I added a black mask to this layer, and selected the UV shells for everything except the eyes.

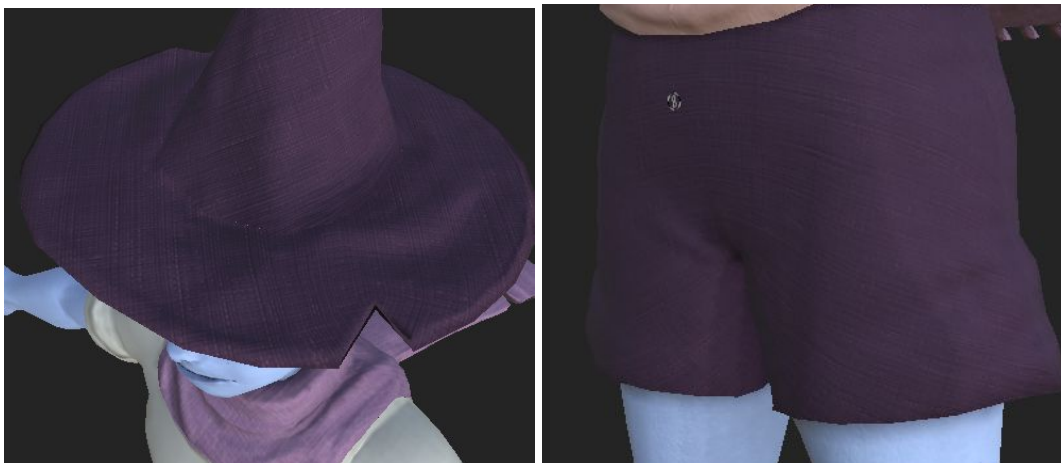


For the boots, I applied a leather smart material and played with all the settings to change it to look softer and less worn. I reduced the 'leather' texture of the boots and increased the shine to make it more stylised.

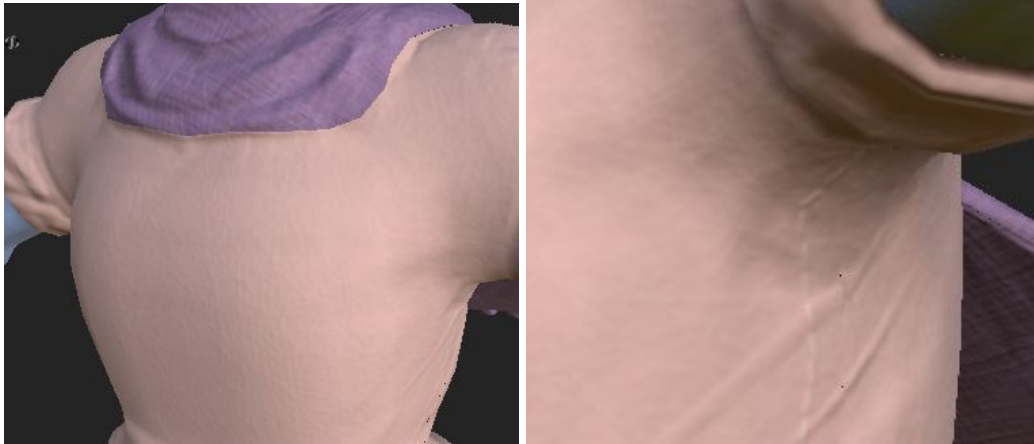
Then I used a mask layer to paint on a rubber texture to the soles of the boots. I changed this to a darker purple colour, and once again reduced the texture to make it less strong.



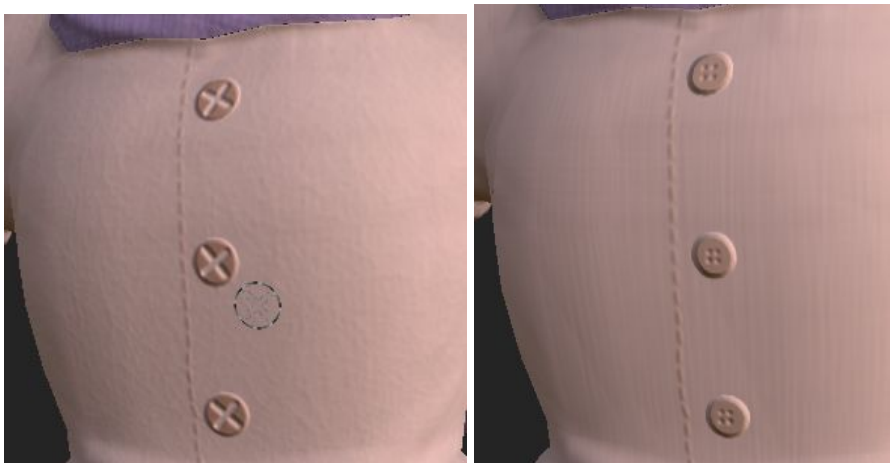
I applied the linen smart material to the scarf, tweaking all the settings to make it less 'coarse' looking. I changed the scale and rotation of the patterns to try and make it look a bit softer. I also strengthened the 'creases' layer to give it more folds.



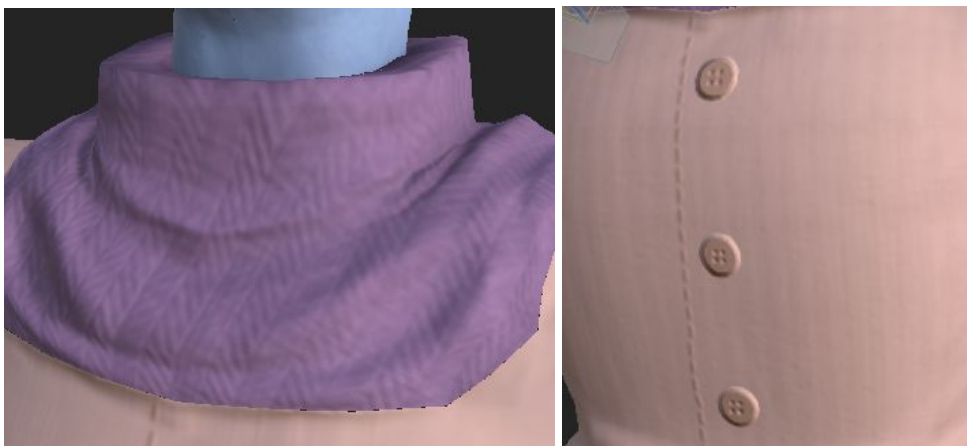
I used the canvas smart material for the hat and shorts, as I wanted the shorts to look thicker in material. I increased the scale of the pattern to make it look softer, and again increased the strength of the 'creases' pattern.



I used linen for the shirt, though deleted a few patterned layers as it made the material look too rough. Next I wanted to draw stitches on the fabric, so I used the first few steps from [this video](#) to apply the stitches pattern as an alpha, changing the spacing of the brush, and increasing the height of the layer before drawing them on.



Next I tried to use this same method to draw on buttons. I increased the height of this layer and first used an alpha pattern that was a circle with a cross. However I wasn't super happy with these, so I just created plain buttons, and used another layer with a lower height to draw on 4 small dots on each one.



I wasn't super happy with the fabrics of the scarf and shirt as they both looked too rough, so I experimented with more fabric patterns, and changed it from a fiber pattern to a more 'corded' one to make the scarf look more knitted, and the shirt softer.



Looking back on my model sheet, I wanted to incorporate the bottom lashes, so I drew it onto the 'lining' layer of his skin. From this I had the idea to add more hand-drawn elements onto my model to better suit my personal style. I drew lines onto the hair near shaded areas of the hair.



I filled in the pupil with a slightly lighter gray for a more cartoony look, and outlined the rubber sole of the boots. I also added stitches near the ankle of the boots for extra detail.



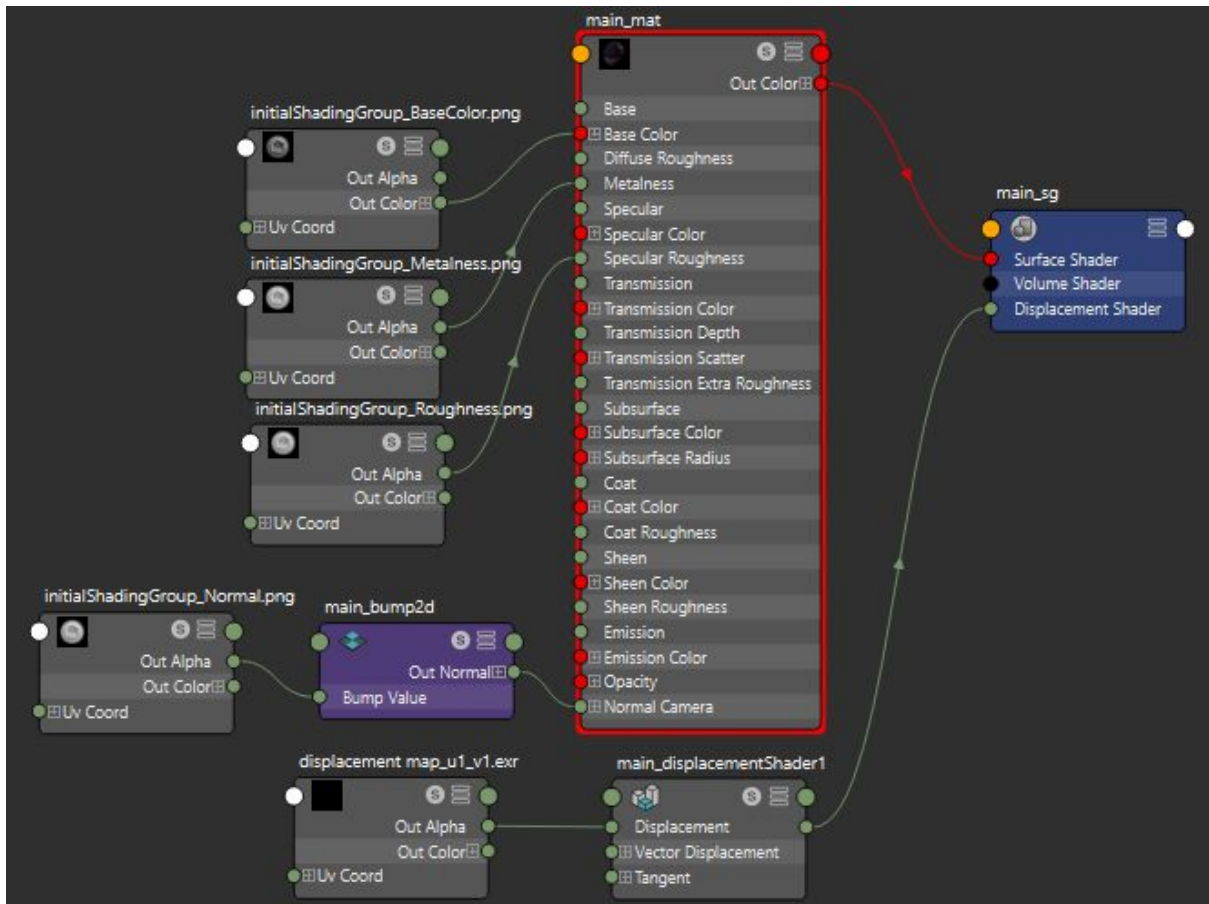
For the scarf, hat and shirt, I used a larger brush size with low opacity for an airbrush, and used a darker colour to deepen the creases and shadows.





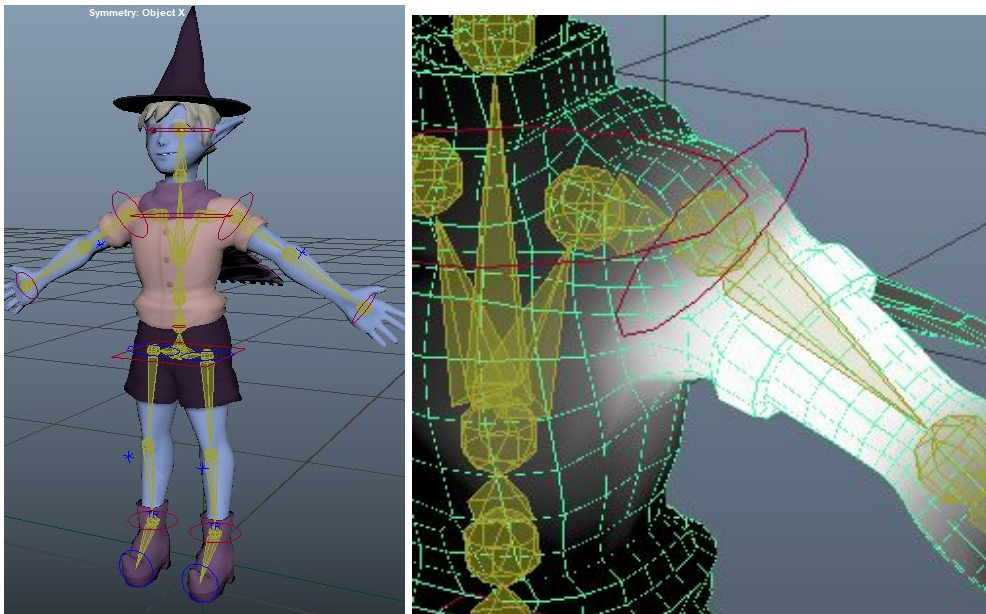
The same is done to the shirt, which shadows near the seam of the shirt and near the buttons for dimension (Right image is before, for comparison).





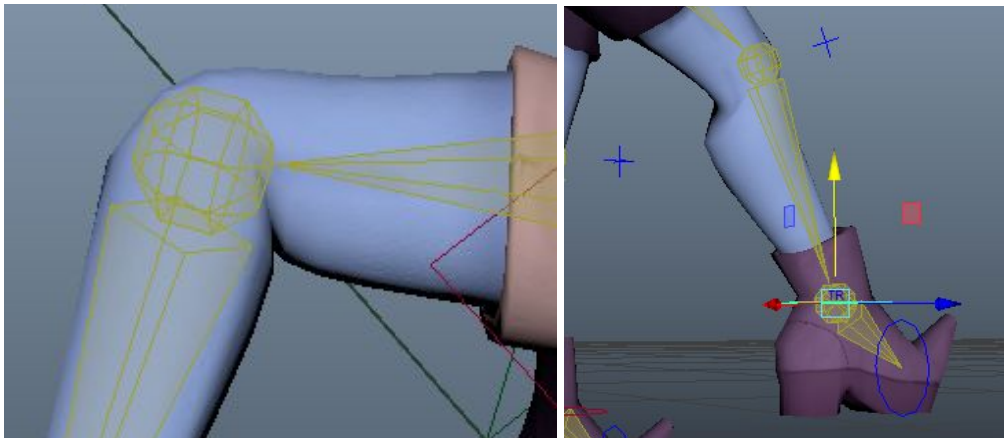
Going back to Maya, I followed the tutorial notes to export the base color, metalness, roughness, normal, and displacement map from Substance Painter.

## Rigging & Skinning

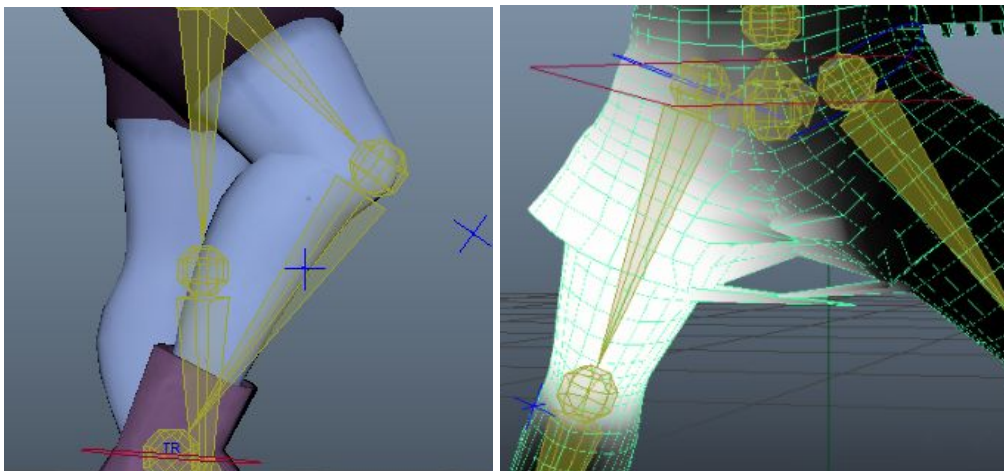


I continued to follow the tutorial notes to use HumanIK to generate a skeleton for my model. I started skin weighting, first fixing the shoulder issues by unselecting the skin near the shoulder, and limiting the upper arm weighting closer to the bottom of the sleeve.

Lastly I used the mirror skin weights option for symmetry.



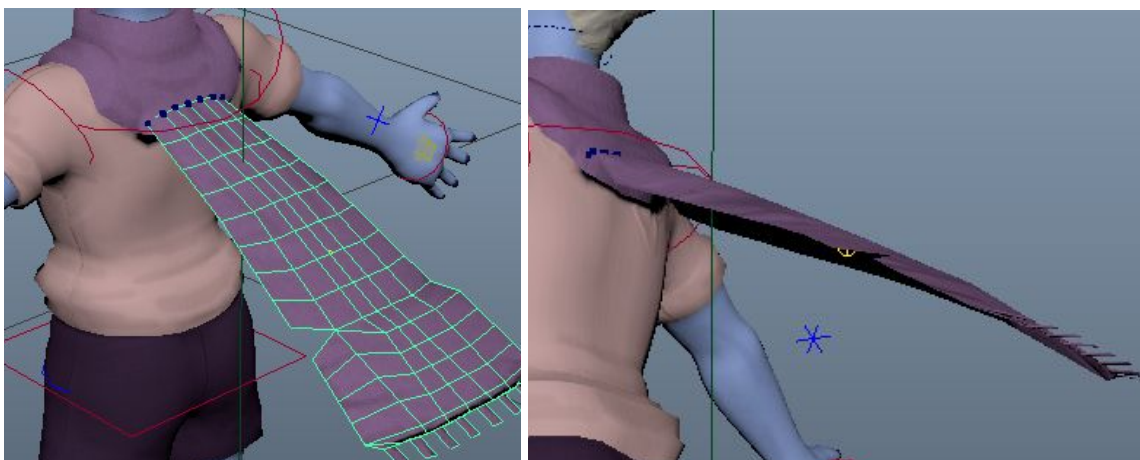
Continuing to play around with the skin weighting brush, I fixed the elbow joint, and back of the knee.



The knee took quite a bit of effort, but eventually I got it to a good point but using a low opacity brush to increase the weighting.

At this point I emailed my tutor to get advice on how to rig the scarf, and for help with the skin weighting for the upper thighs, as they bled into each other and the skin weighting tool wouldn't allow me to unpaint the other leg.

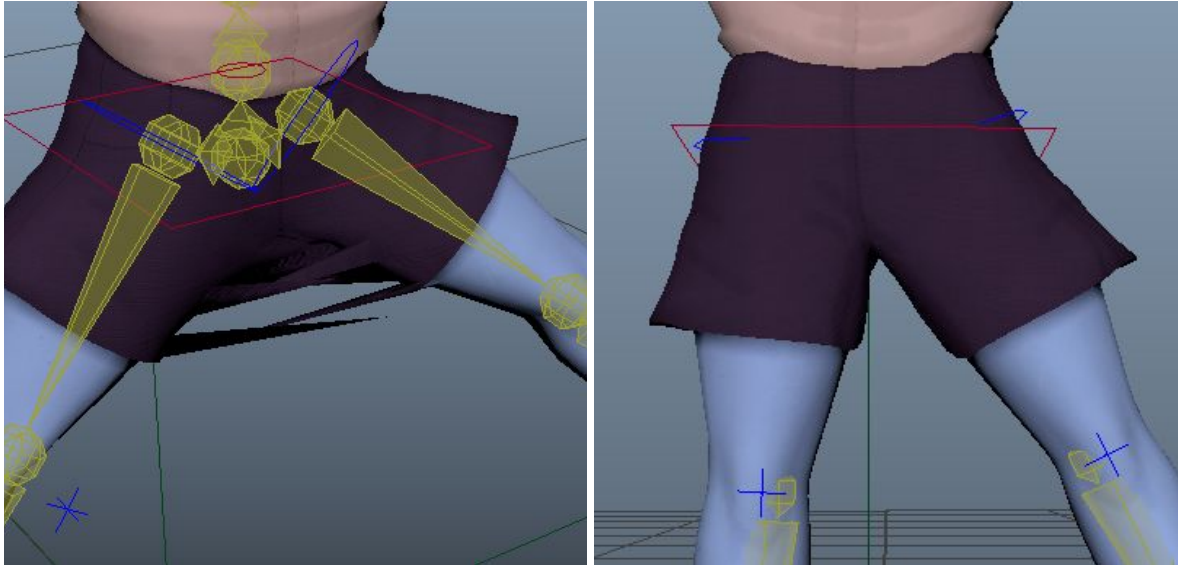
I was advised to make my scarf into a single plane object, and use nCloth, following this [video tutorial](#).





I first separated the scarf from the body, using the extract and separate tools. I filled the hole at the back of the scarf using the bridge and fill hole tools, and fixed up the UV maps to cover the hole with the scarf fabric.

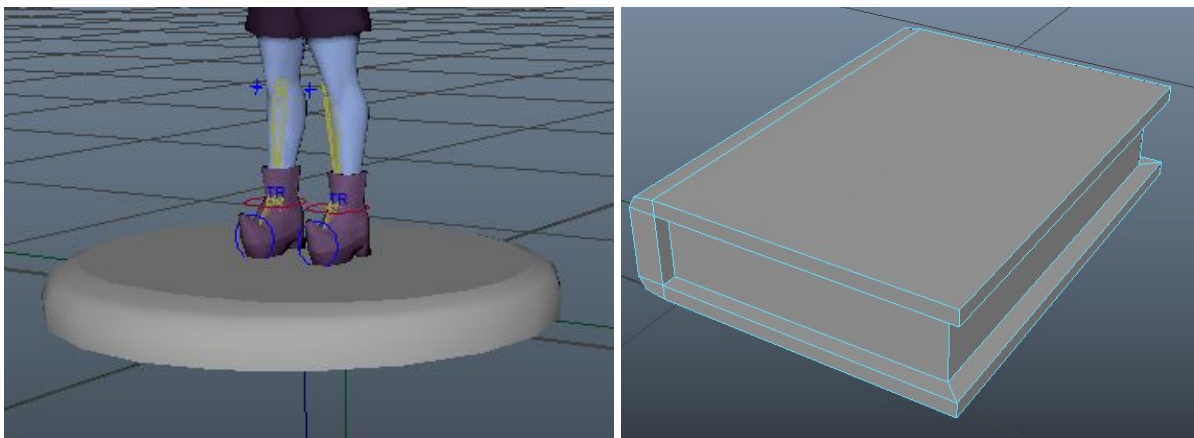
I used nCloth with the scarf, following the steps of the video tutorial, and tweaked the gravity and upwards wind to make the scarf 'float'.



Next I wanted to fix the thigh issue, but found that the skin weighing tool just displayed a red X. I tried to follow the first few solutions provided in [this forum](#) to try and fix it, but after this didn't work I was helped again by my tutor.

He explained that this was because I separated the scarf after I had rigged my character, so he unbound and rebound the skeleton, and helped fix the skin weighting of the upper legs!! I did some further editing with the skin weighting of the knee, but the rigging is done.

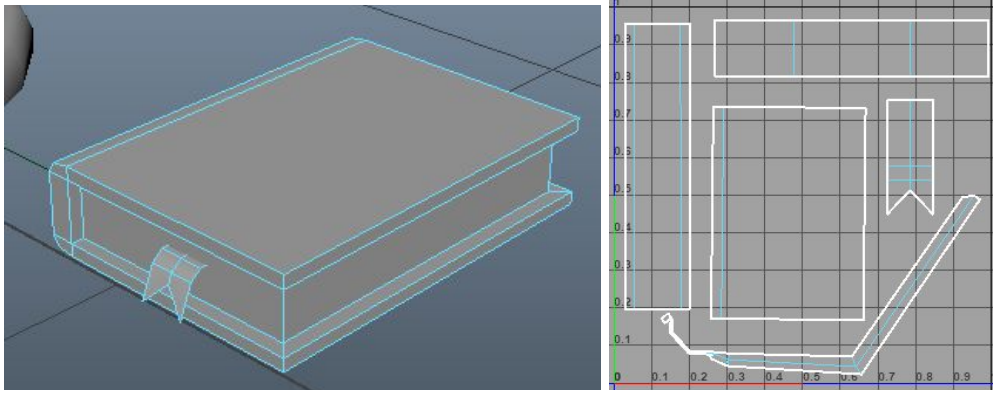
## Posing



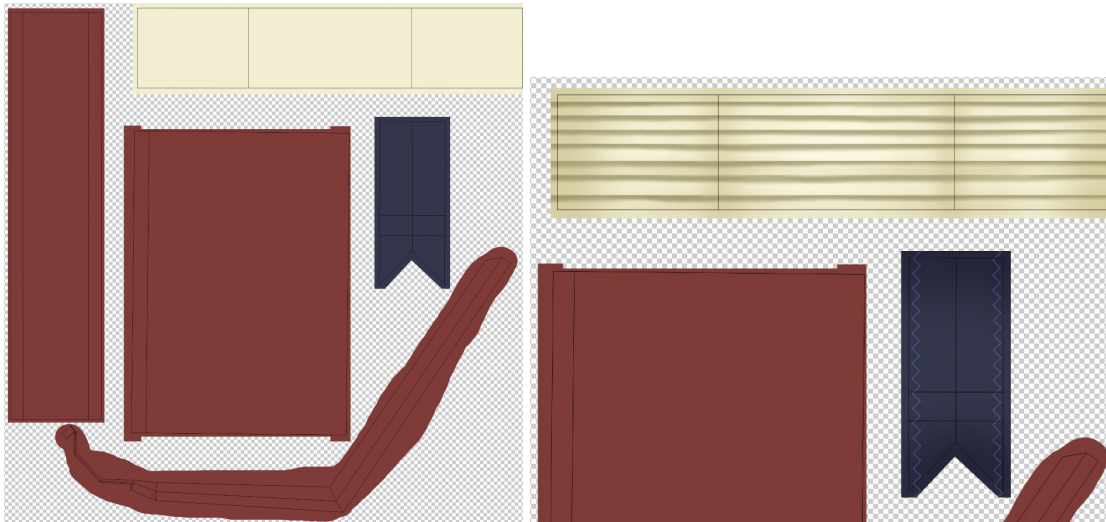
First I made a simple pedestal using a cylinder and edge loops, and the bevel tool. I experimented with a square base, but felt that it didn't suit the character.

For the posing, I wanted to add some books into the scene for props, so made a really simple book using a square, and using the extrude tool.

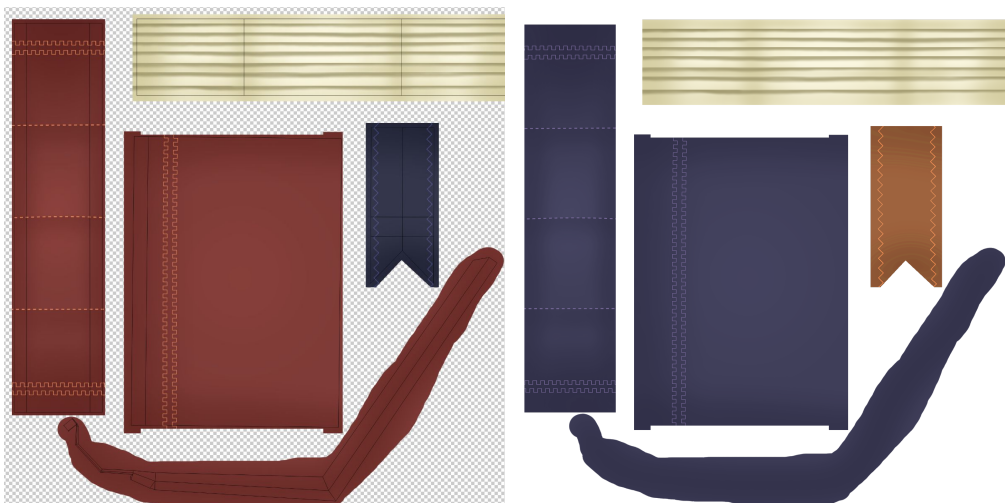




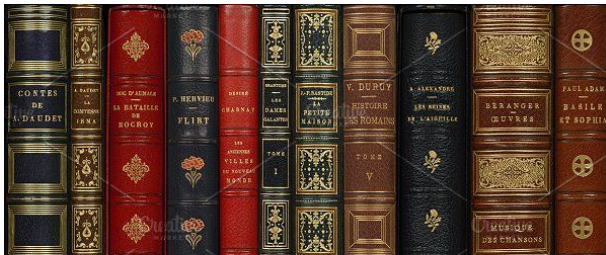
I made a bookmark using a square plane, and rotated all the edges to make it hang down. I UV mapped it into the spine, pages, cover, bookmark, and left the sides. I exported the UV map (using [this page](#) to remember how to) to a png.



I used Clip Studio Paint, firstly placing my base colors. For the pages, I used a small airbrush tool to draw the pages, and a large airbrush for gradients. I used a darker colour at the spine of the pages, and a lighter colour in the middle of each section as a highlight. I used a gradient for the top and bottom of the bookmark, and a zig-zag patterned brush for small details.



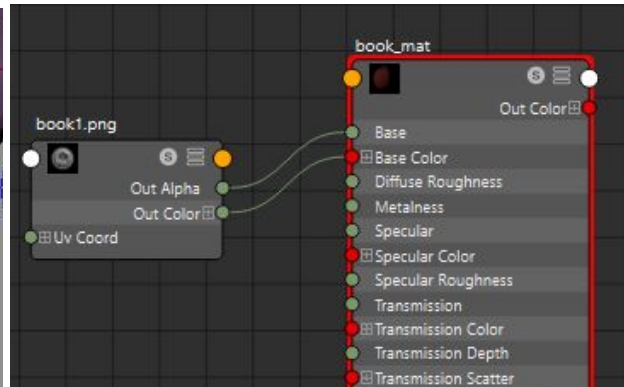
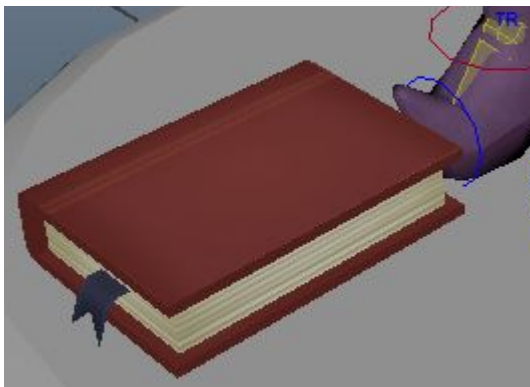
I finished colouring the book using a darker colour for shading, lighter for highlights, and patterned brushes for details on the cover and spine.



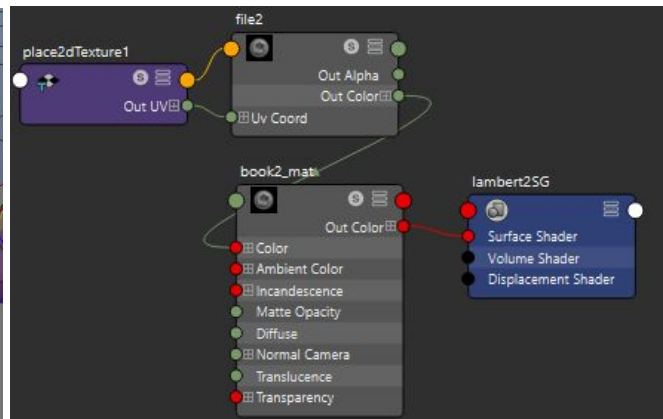
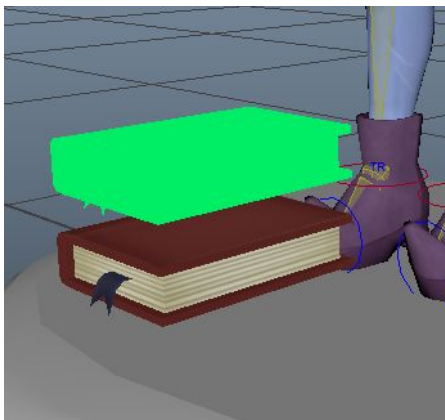
[\[source\]](#)

I drew the spine based on the design of old books, separating the spine into sections using a dash lined brush, and using another patterned brush for details at the top and bottom of the spine and on the cover.

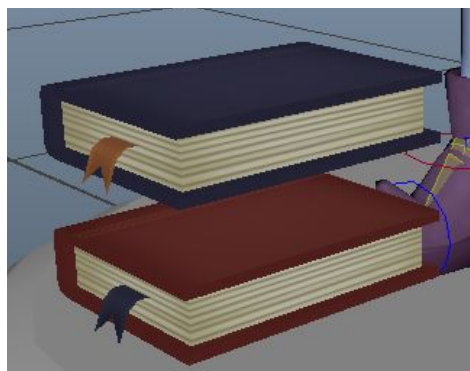
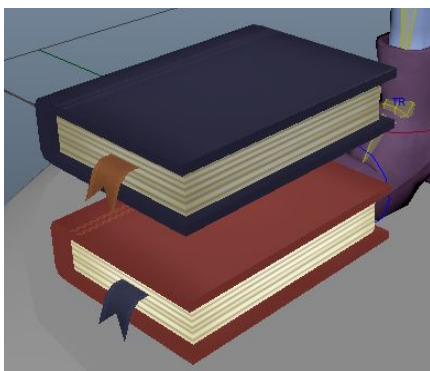
Lastly I used the hue/saturation sliders to create an alternate colour palette.



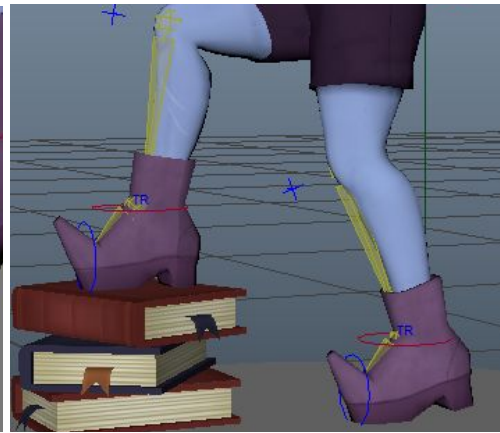
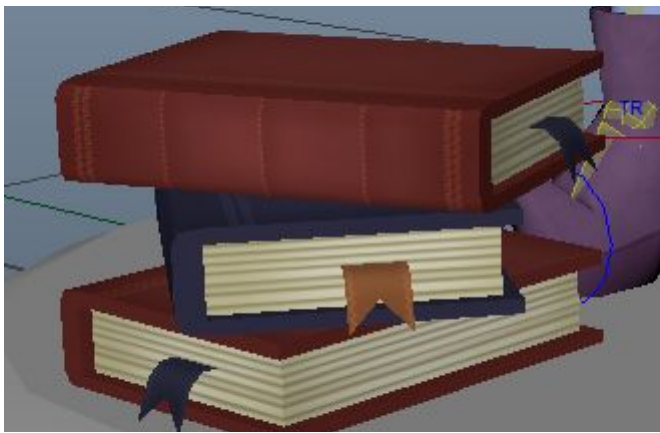
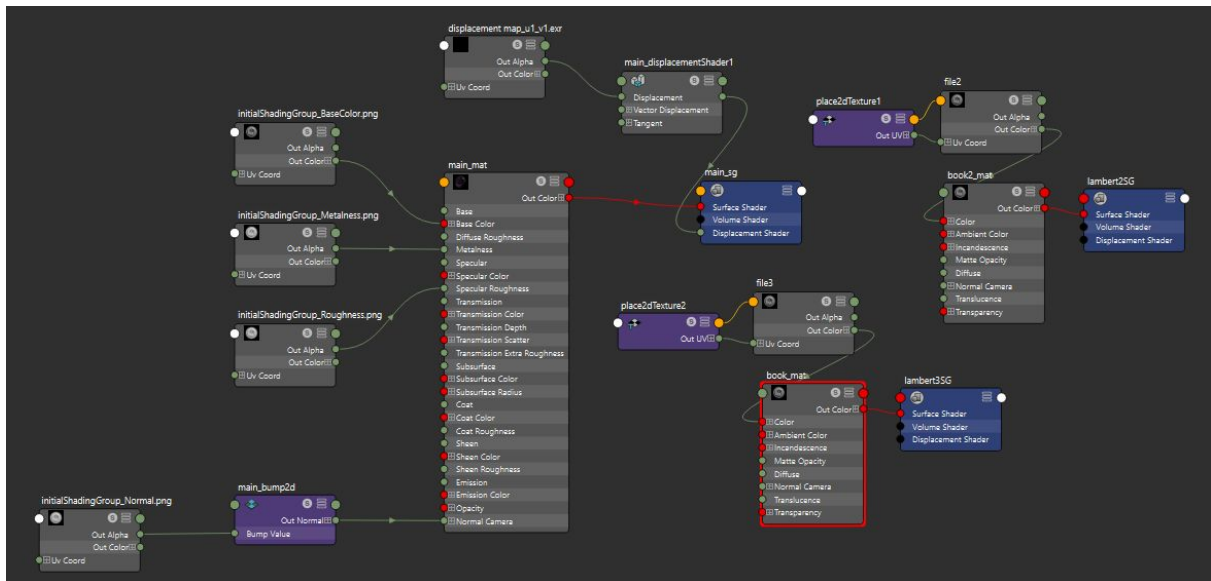
I created a new material for the first book, using an aiStandardShader.



However when I did the same for a copy of the book, it became completely green, so I used lambert, and added a 'file' node.

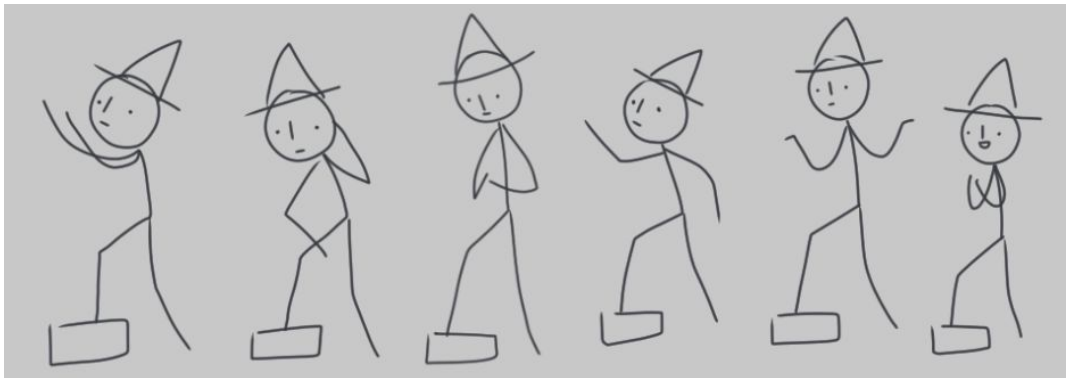


However there was an obvious difference between the aiStandardSurface (red book) and the lambert one (blue book), so I replaced the aiStandardSurface with a lambert shader.



I started by rotating and moving the books to make them stack, using the side view to ensure they were touching. I first posed his boot on the pile, again using the side view to make it sit properly.

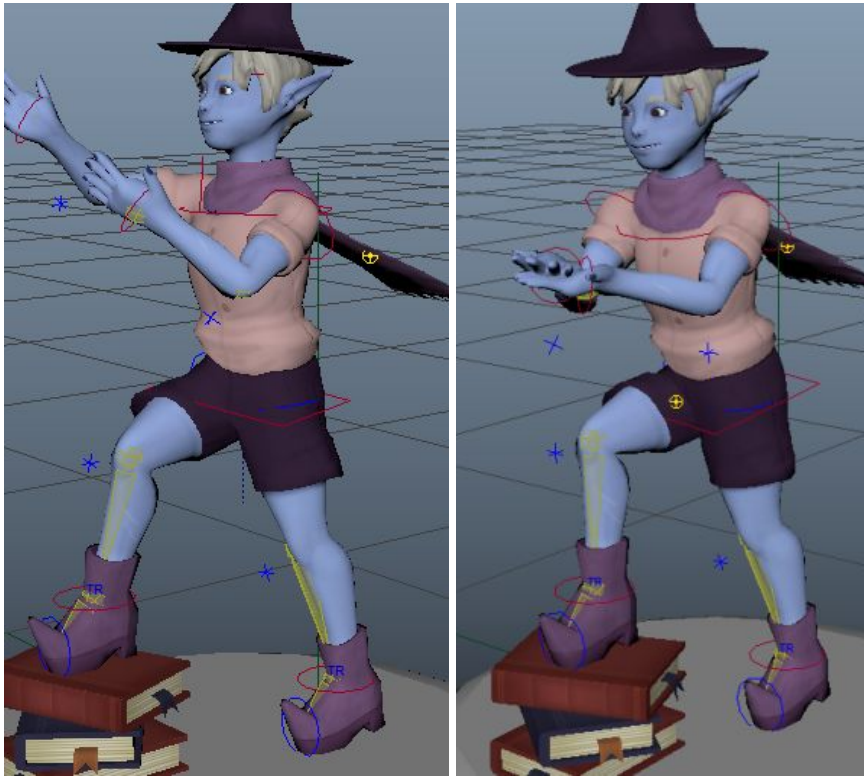
I originally only wanted to use two books, but the stack was too low and looked a bit odd.



I started by sketching out what kind of poses I could do with the books, which turned out to be quite limited as I couldn't understand how to add extra joints in the hands to pose them. I tried to follow this [video tutorial](#), but for some reason couldn't place any joints like he could, and I didn't want to rig my character again as I was completely happy with all the skin weighting and didn't want to lose my progress.



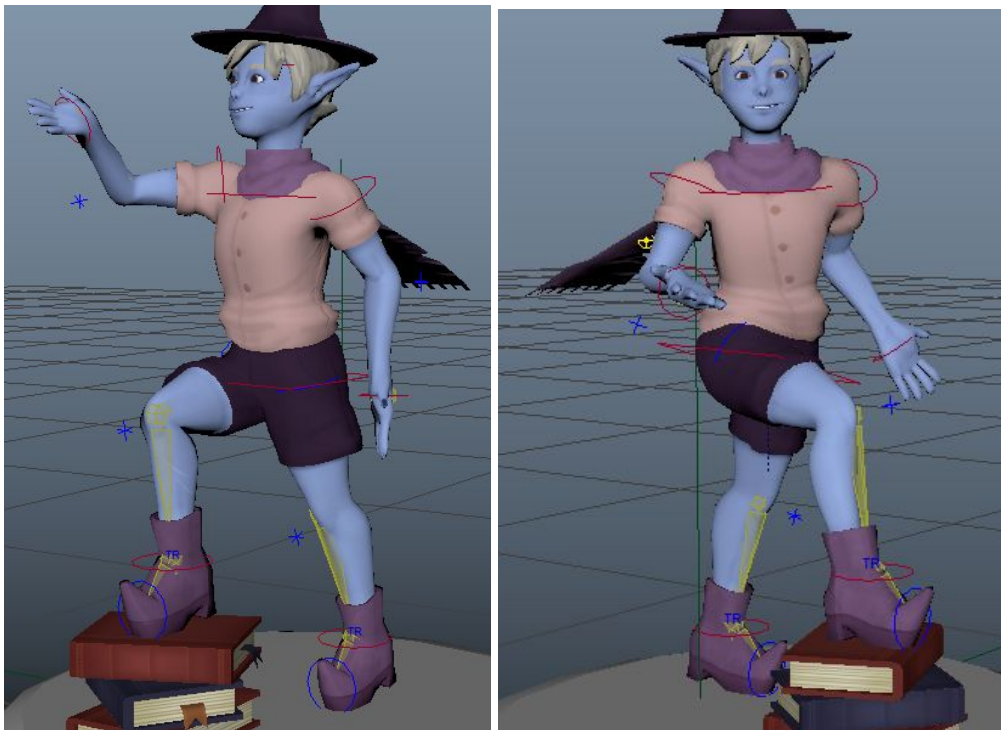
Generally I wanted my poses to convey Feyn's confidence and playful nature, so I emphasised the forward stance of each pose, and exaggerated the posing.



Pose 1: Reaching for a spell.

Pose 2: Holding a spell.

The first two I made with the intention of making an extra prop, a small fireball for him to hold. However I wasn't super happy with these poses, as I thought they felt too stiff. I also had no idea how to make the kind of fireball I wanted, and didn't know how to generate another light source from the fire.



Pose 3: Reaching for a spell 2

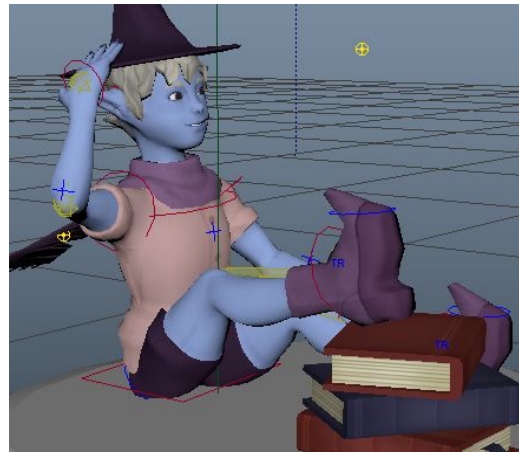
Pose 4: Casual shrug



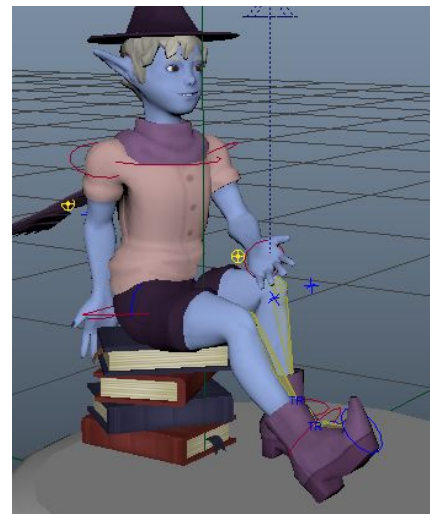
Pose 3 had the same issues as 1 and 2, though I liked the 'open' pose better. For pose 4 I wanted to make it appear as if he was mid conversation, with his height on the forward leg, on the book stack. I like this pose, as I think it shows off his casual and friendly nature.



Pose 5: Shy



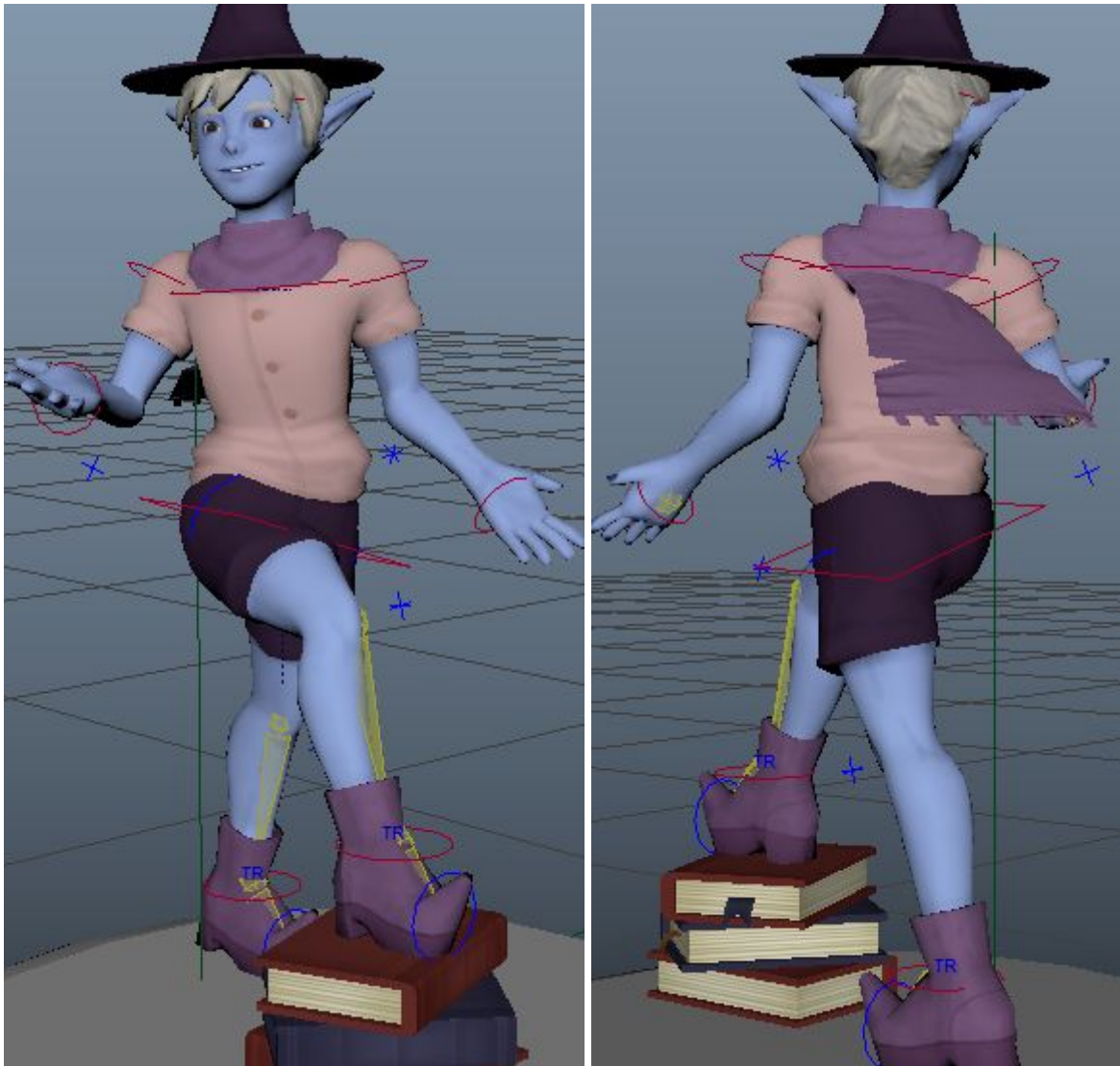
Pose 6: Feet Up



Pose 7: Sitting

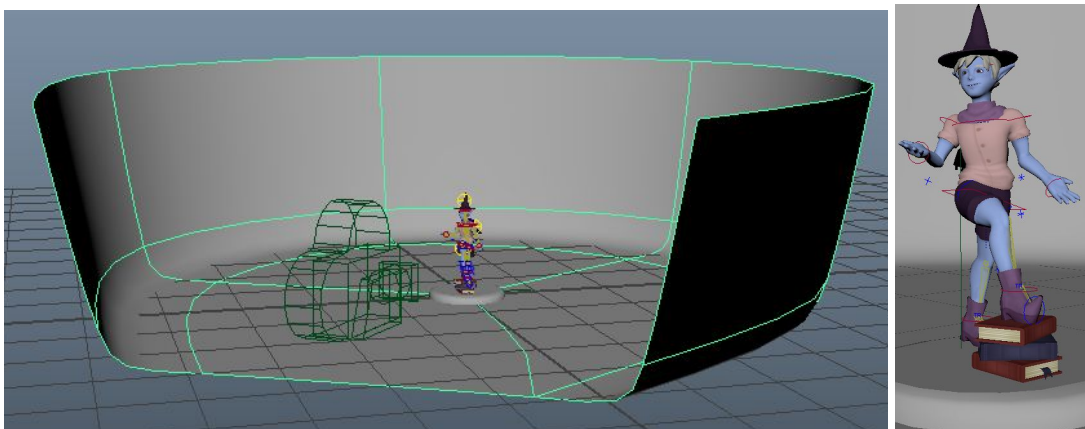
I like the look of the hand behind the head in pose 5, but because of my lack of control of the fingers, the hand kinda sits flat at the back of the head which looks a bit weird. Though I like this pose I feel that it doesn't suit his character.

Pose 6 and 7 I experimented with sitting him on the floor or on the books. However I felt that having him sit needed a lot of adjustment to look right, and even after all my tweaking it still looks a bit wonky. I do like pose 7, but I feel the book stack is too small.



Ultimately I decided to go with pose 4 (casual shrug), and tweaked it a lot to improve the pose. I rotated the torso and hip joints in opposite directions for a stylised, twisted pose. I think that exaggerating the pose worked out really well as it made the pose dynamic from every angle, and I think this suits his personality really well, casual with open body language. I also rotated the scarf more to one side for a better silhouette, and to appear more dynamic.

## Lighting



I started by extruding the sides of a circular plane to make a 'room' for my character to stand in, and created a camera at a suitable angle to show his pose and my model.



I started with the backlight, which was placed at a medium distance from the character using a high intensity spotlight.

The fill light used a warm spotlight, at an intensity of 10 which I turned down as it appeared too bright in the Maya hardware renderer.

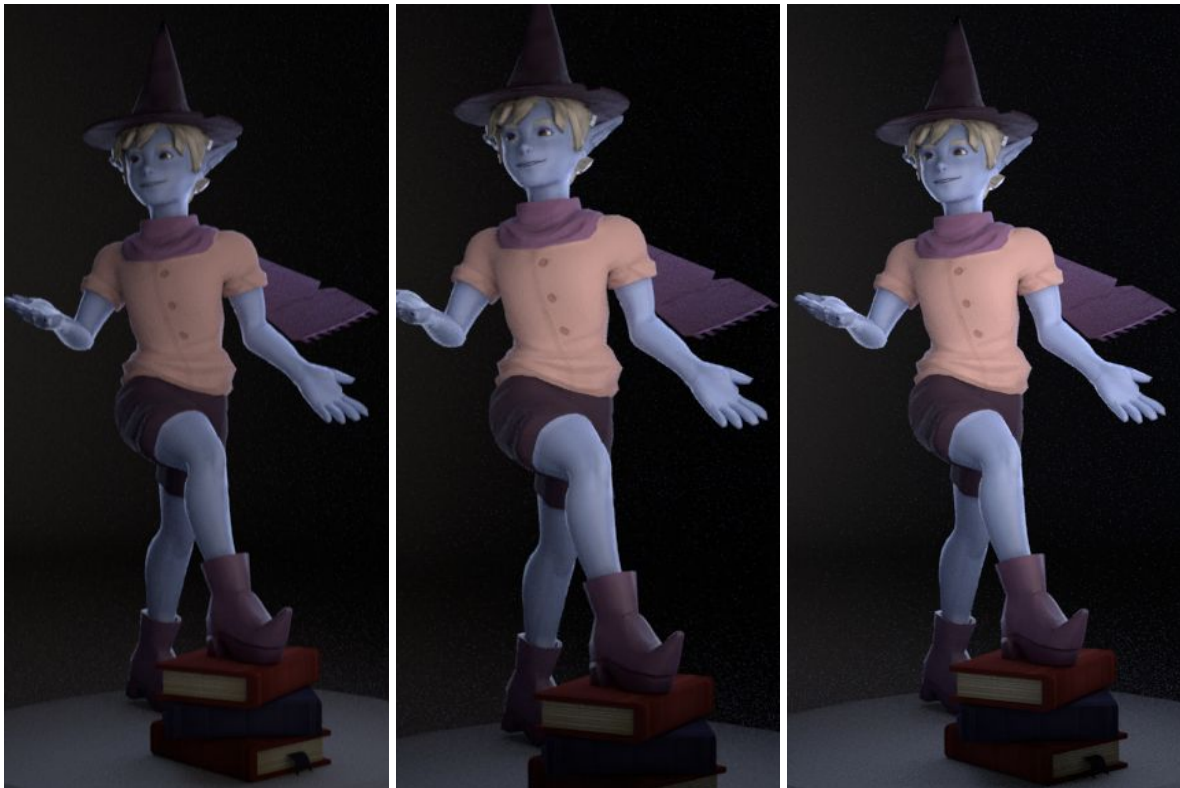




I changed the backlight to a cool temperature and selected a light blue colour, and added a key light using an area light. I also lowered the intensity of this area light as it was much too strong. I also realised at this point that the scarf was hidden in the render, so I rotated it.

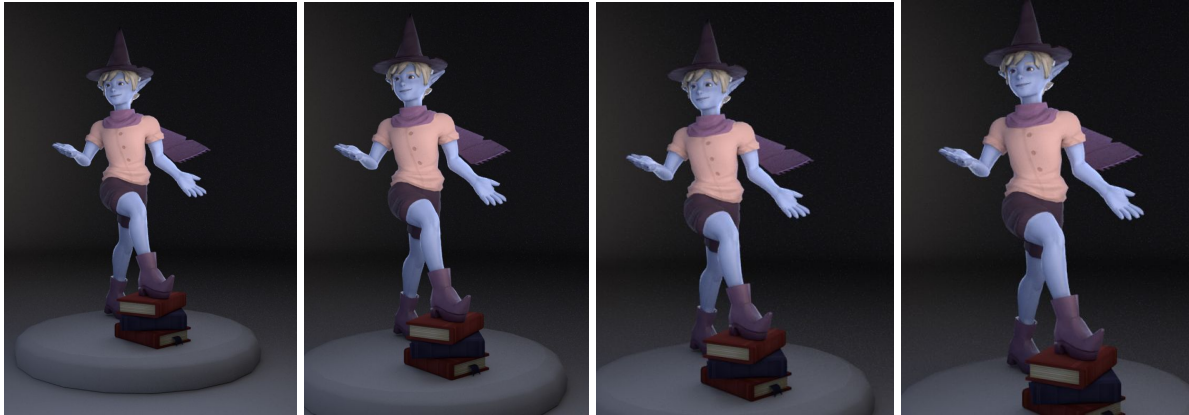


After finishing the lighting of my character, I then realised I was meant to be using the Arnold renderer. Switching over to Arnold renderer, my character looked 'exploded' and the image was extremely dark (I've lightened the image just to document how the model deformed). I received advice to turn down the scale of the displacement map, which I reduced to 0.05.





However after some thought I reduced the displacement map further to 0.001 to make him look 'smoother'. I bumped up the intensity of the backlight and the key light, increasing the temperature of the key light.



I was happy with the lighting, but I realised at this point that my rendering camera was too low, and too far away from the subject. So I just moved it closer to my character, trying to keep the angle but centre him and zoom in.

I also added another light on top of my character, to better illuminate the book pile, and to make the background less dark. This used an area light at a super low intensity. Lastly increased the samples of all the lights from 2 to 3 to try and reduce the 'graininess'.



For my final renders I posed him a second time, a more 'open' pose with a hand over his heart. But after the rendering time, Feyn's model is done !!