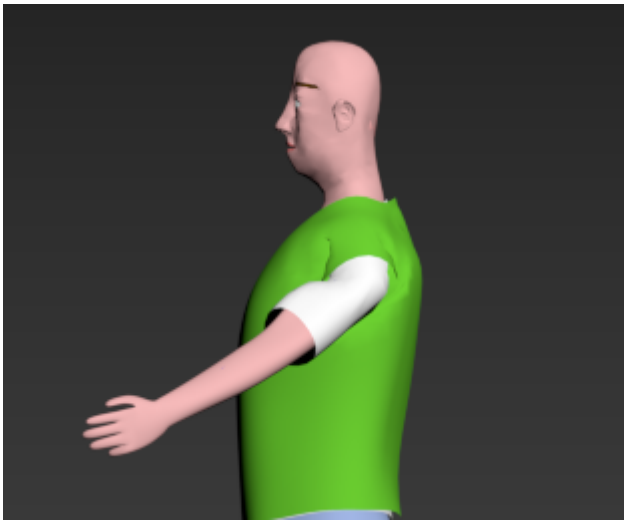
For this part I used knowledge gained from moodle tutorials.

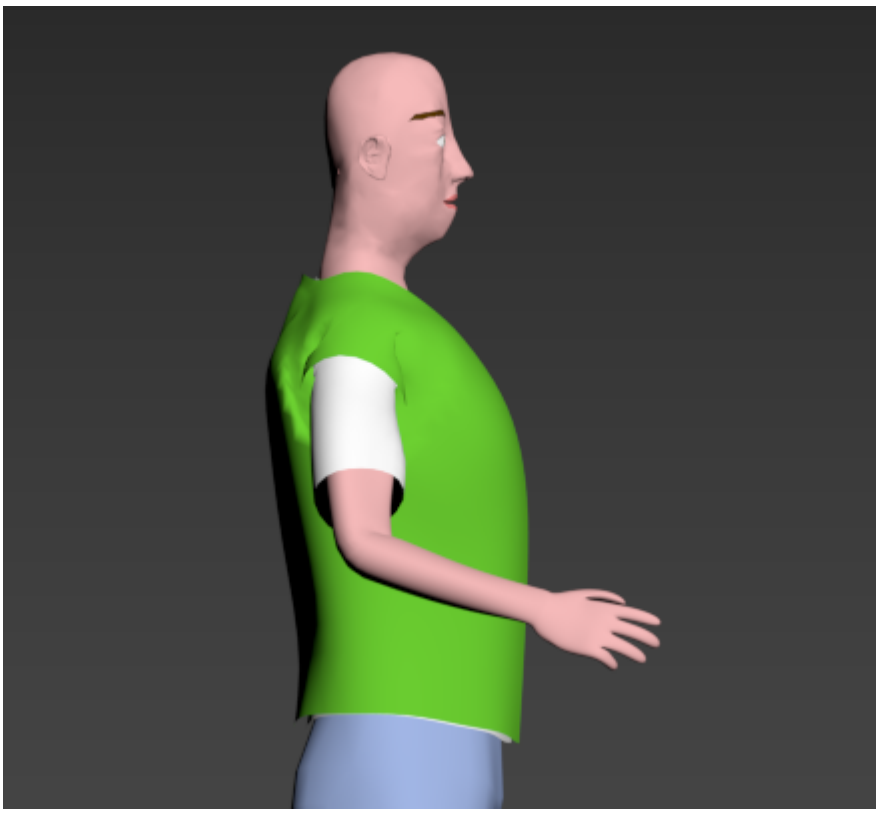
**Rigging**

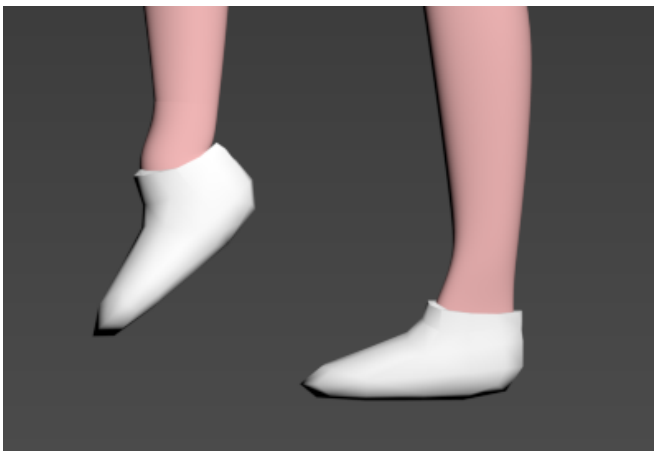
I made my model see through and applied freeze selection. I created a bipod and lined it up inside the model. I adjusted individual parts of the bipod by scaling and rotating them while making sure both sides of the bipod were the same.

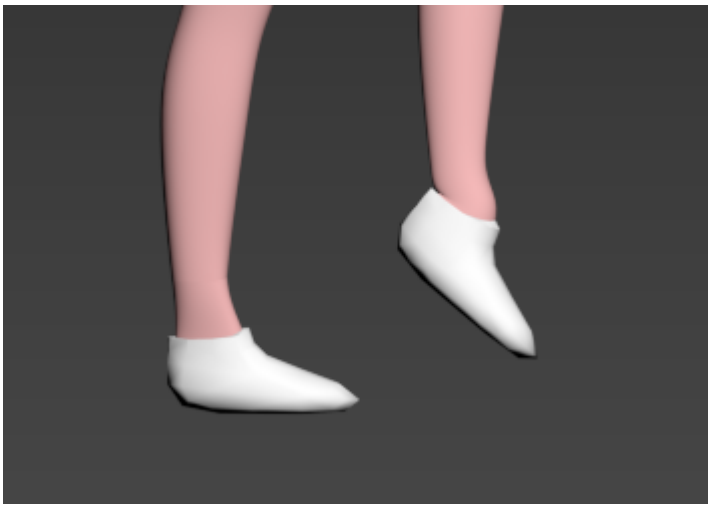
I used the skin modifier, I added bones and selected all.

I edited envelopes, this was trial and error but I adjusted the points and their reach on one side of the model and then manually copied it to the other side. I did this for the elbow, pelvis, foot and shoulder joints as only they needed to be adjusted. I had to restart rigging multiple times as i encountered visual errors that i couldn't resolve, however this is my final attempt:



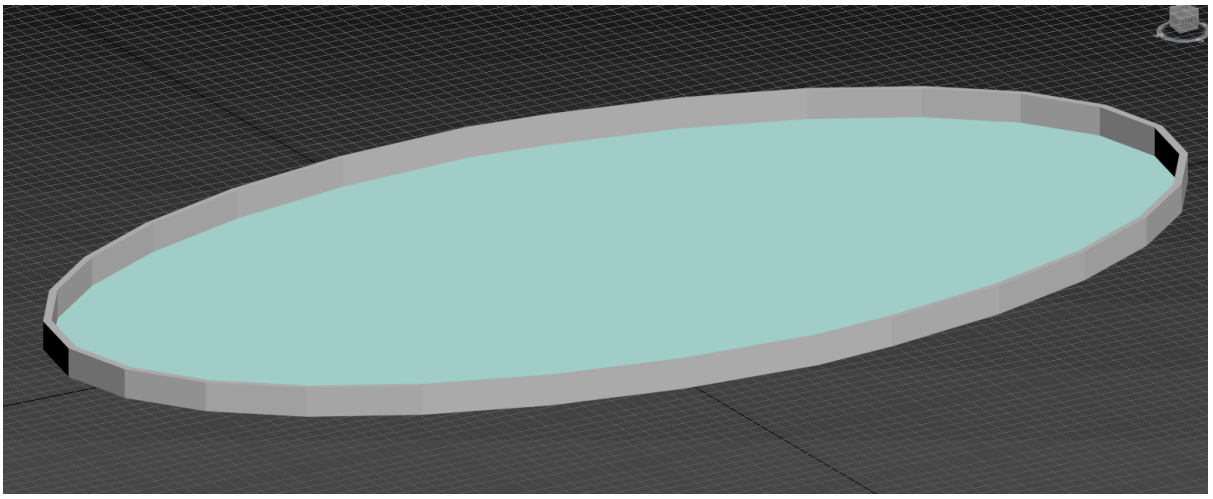


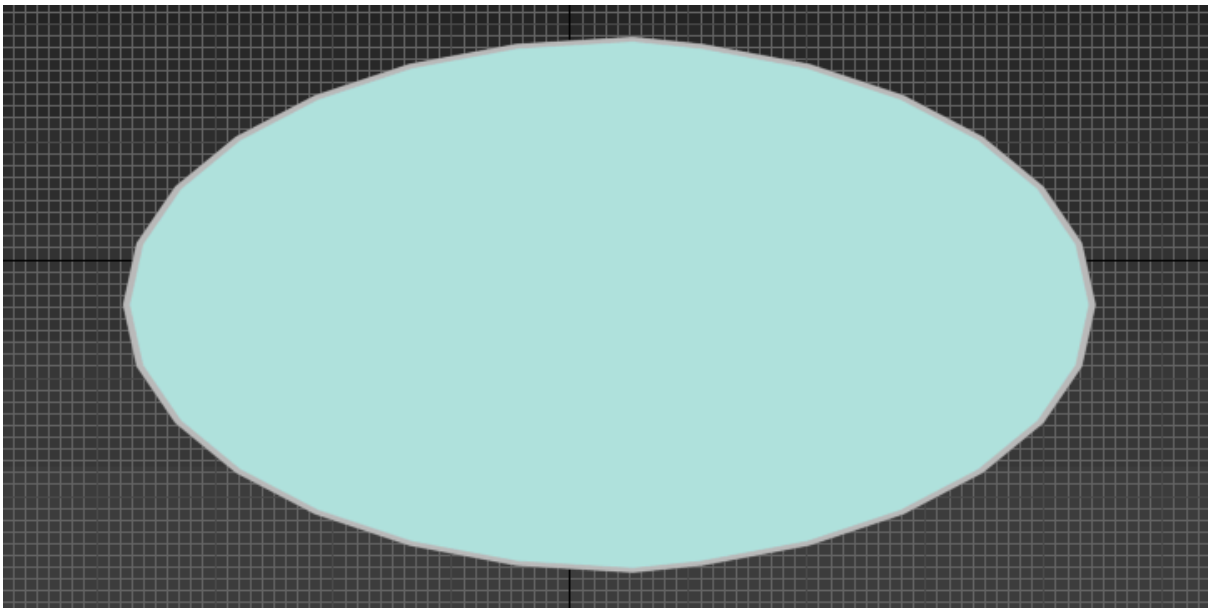




**Scene**

To make the scene I made 2 editable polys. One is an eclipse and one is in the shape of a wall around that eclipse.
I applied shell to the wall with value of 5.
I made 2 physical materials. 1 is grey and 1 is blue with reflections value of 1.
I applied the first material to the wall and the second to the eclipse.
I attached both editable polys.
I selected match material id's to material.





**Animation**

While animating I froze the selection on my model to access the bipod. I would unfreeze it to watch my animation back but I would freeze it again to continue animating.

When I started the animation I made the bipod motion without movement. I turned on autokey, I selected keyframes and moved different parts of the bipod into poses that were meant to flow into each other. I attempted a couple of kickoff motions and a spin.

I added movement to the motions. I did this by returning to the keyframes and moving/rotating the bipod to where I believed it should be to look natural. At this point I realised it didn't look natural and I was going to have to add movement and fine tune my animation as I went along. I was able to copy some poses that I would later use, these being poses used for spin, kickoff and a gliding pose.

I decided to split my animation up into different moves and make the transitions between them as smooth as possible. This is to focus on smaller sections, providing an interesting move in each one. I would position and pose my bipod in keyframes and add small differences (movement and rotation to bipod and parts of bipod) between them in an attempt to create a realistic and interesting ice skating motion. At this stage I would:

- Go back and change frames
- Look at things from different angles
- Make sure the motion is consistent (not speeding or slowing in places it isn't meant to)
- Make lots of small changes and adjustments (rotating and moving bipod and parts of bipod)

I wasn't happy with the animation but I continued through different moves. I slowed it down to 1/4 speed. I had previously turned it down to 1/2 due to the animation being too fast. The last move I made was a spin that slowed into stopping. I did well at slowly decreasing the speed as my character put his foot out to stop, by adding less movement and rotational movement between frames. This showed improvement, so I decided to re-make everything, only keeping poses.

I worked backwards from the last spin using similar animation methods. I put more time into animating and produced better results

I had the idea of him landing a jump on one leg. I created poses for this move (positioning the different parts of the bipod across frames) and made landing poses, in air poses and kickoff to jump poses. Positioning the bipod in a way where the jump looked natural, took more time but after a lot of adjustments I was happy with it.

In my scene the character was getting close to the wall, reducing space. I had my character do a 180 spin around the corner so they go into it backwards and come out forwards to go into the jump I just animated. This was easy to animate and I had most of the spin poses copied already.  I had to refine poses and position and rotate the bipod through the new and overwritten keyframes to accommodate for the spin and corner. The kickoff  from the spin

has a slight speed increase (more movement between frames) and directional change around the corner.

As my character was backwards after this movement, I made a 540 spin where he goes in forwards. I used previously created poses that I copied, pasted and refined. After the kickoff pose I rotate the bipod between frames. As it's a longer spin the amount of rotational movement between frames decreases until the frame where he puts his foot down and rotation stops with him facing and moving backwards to go into the 180 spin.

I made a copy of my scene, made one invisible, and deleted the walls on the other so I could see if my model is touching the ground throughout the animation. At frames that he wasn't I would lower him until at least 1 foot is touching the ground, apart from on jump.

I added more dramatic arm and body movements by going through the frames and adjusting the bipod. I made use of copying postures for parts of the bipod and reusing arm or body postures. I matched arm movement and momentum to legs for instances like kicking off and positioned them aesthetically for other poses.

I rescaled time and multiplied the length by 4 (119x4=476). This was so I could revert my animation to normal speed as it was still in 1/4 and have a higher fps.

**Camera**

I used a target camera. I wanted different camera positions for different parts of my animation with instant transitions. I positioned the camera for the first and last frame of every position so that when it finishes the last frame of a position the camera jumps to the first frame of the next position. In one of my positions I had the target move to follow the animation, I accomplished this by moving the target for the last frame of the position, so the camera angle moves throughout.

**Rendering specs**

Render quality: 2560x1440 (although I selected this quality I'm not sure if the video uses it as it says 720x480 in file properties)
File type: avi
Render type: Arnold render
Other settings weren't changed