

L4 - Academic and Professional Development (ACCA4039)

3D Modelling Production Diary – 2400891 (Roman Woods Pigg)

Week 1 // 30/09/2024 – 06/10/2024

3D + Maya Introduction // 03/10/2024

This week was a simple introduction to 3D understanding, as well as Maya.

- *Vertices = The corners of the shape / Edge = The lines connecting each vertices / Face = The flat shapes that connect each edge.*

Maya hotkeys:

- *F = Focus on object*
- *Alt + Mouse = Move camera view*
- *Space = Change viewport*
- *F8 = Switch between 'Object mode' and 'Component mode'*
- *W = Translation / E = Rotation / R = Scale*

Week 2 // 07/10/2024 – 13/10/2024

Further Introduction + Lamppost // 10/10/2024

- *N-gons = faces with more than 4 vertices*

Using the basic skills we had learnt using maya, as well as some further basic transforming techniques. Although I have some experience with Blender, Maya is quite new to me and the navigation takes some time to get used to. A lot of the basics are quite similar though, which gave me good introduction to this program.

Lamppost Models

I first made a more modern lamppost with no reference, then was instructed to use a reference to create another one. Ensuring that all the details had been properly captured was hard, but I think it makes a more effective final product compared to the lamppost made without – regardless of their stylistic differences.



[Ref; 1, 2, 3, 4]

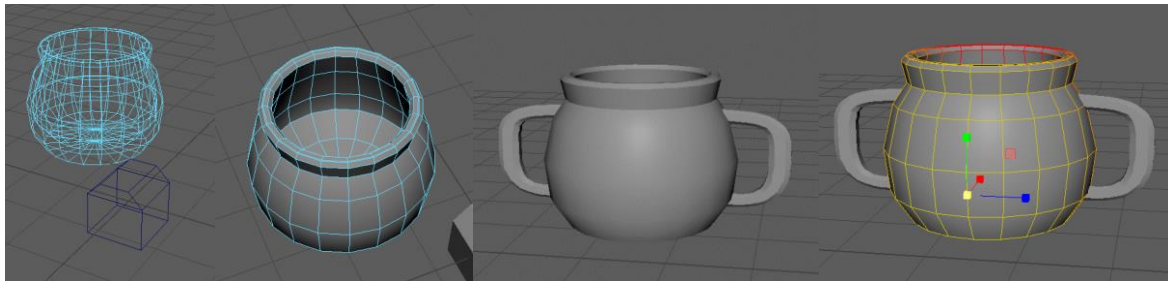
Week 3 // 14/10/2024 – 20/10/2024

Further Skills + Pot // 03/10/2024

- *Multi-cut* – Cuts into a shape to remove n-gons/add edges.
- *Edge Loop* – Creates an edge loop around the shape.
- *Bevelling (CTRL+ B)* – Rounds out a shape by adding new polygons.
- *Wireframe* – see-through view of just the outlines of the model.
- *Bridge* – Bridging a gap between two shapes.
- *Soft select (B)* - Has an area of effect that affects the surrounding edges when transforming.

This lesson went into more developed methods of sculpting such as bridging and bevelling. I didn't have much trouble with bevelling as it's something I've used before; however, bridging is new to me. I had some trouble with bridging to start as I had multiple cubes which caused a jagged connection between them. Instead of my initial method, I used less cubes and instead edited the settings of the bridging tool to create a more seamless curve.

Pot Model

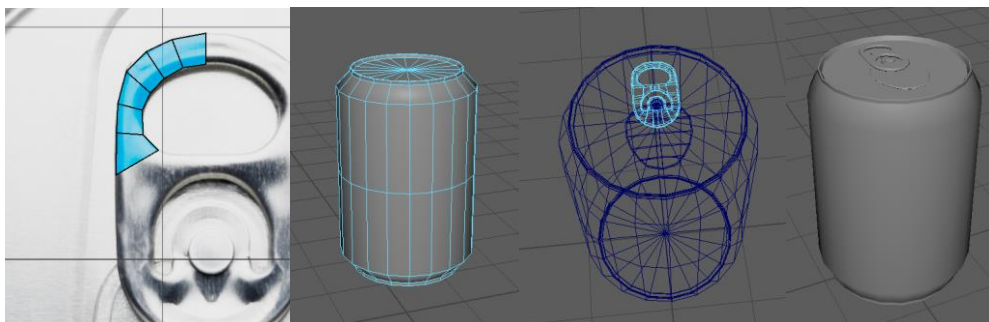


[Ref; 5, 6, 7, 8]

Week 4 // 21/10/2024 – 27/10/2024

Introduction to Quad Draw // 22/10/2024 [Caught up 03/12/2024]

- *Quad Draw* – A quick way to draw unique shapes in 3D.



[Ref; 9 + 10, 11, 12, 13]

Using quad draw, I made the tab pull and entrance to the can. Apart from that most of these techniques have been like other models I've made.

- Maya did crash a couple times while I was making these cans, so I had to remake the tab a couple times, but I think that helped me understand quad draw and the most effective way to layout the vertices when making an object.
- To make a cleaner topology, I only used quad draw to map out half the tab and used the mirror tool to mirror it horizontally.
- I also used the mirror tool to make the can identical top to bottom.
- I used bevelling to make the tab round around the edges like they are in real life.

Week 5 // 28/10/2024 – 03/10/2024

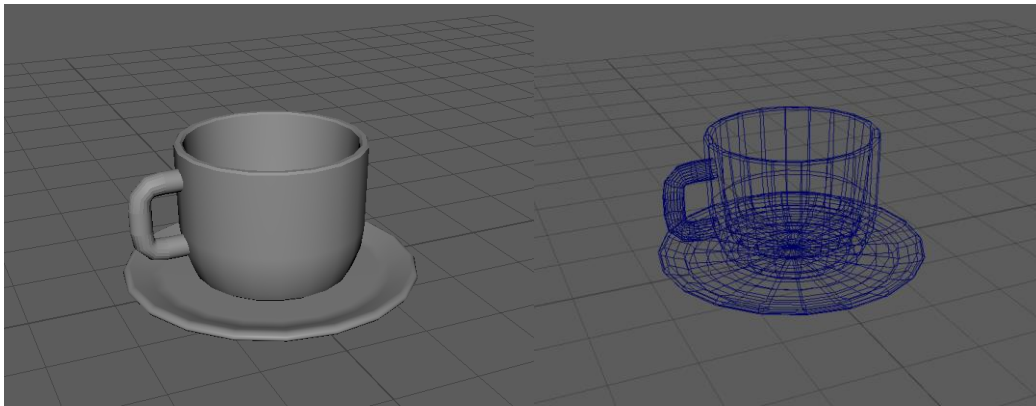
Properties and skills in Maya // 29/10/2024

- *Primitive Properties* – A way to change the number of subdivisions.
- *Booleans* – Booleans are a way to combine, divide or intersect two different objects.

Teacup and Saucer Model

This teacup was made using basic tools such as bridging for the handle, extruding to empty out the center of the cup and bevelling to smooth out the edges of the shape.

- The handle was made using 3 cubes joined together using the 'curve' type of the bridge tool.



[Ref; 14, 15]

Week 6 // Break

Week 7 // 11/11/2024 – 17/11/2024

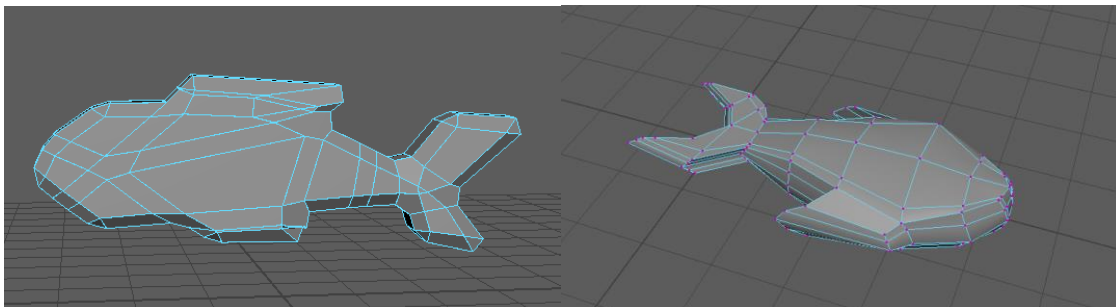
Further Quad draw exploration // 12/11/2024

Test Fish Model

This model was a quick test I did to better understand quad draw and how it can be used in other applications. I decided to make an unrealistic basic fish model. Here's some models I looked at for inspiration.



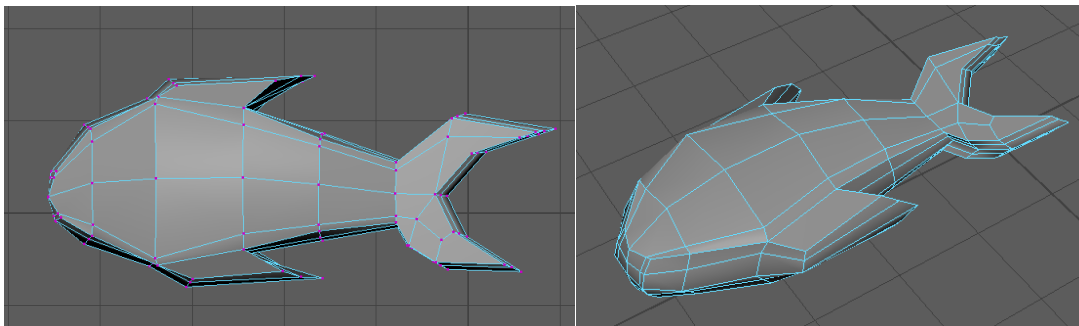
[Ref; 16]



[Ref; 17, 18]

My first attempt had messy faces and was disorganised and cluttered - I fixed this by re-doing the shape, trying to keep the shapes as square and evenly spaced as possible. My second attempt was a lot better, but had some minor issues on the tail where the vertexes were cluttered. Moving these to be more evenly spaced created a neater topology.

Here's the final I'm happy with:



[Ref; 19, 20]

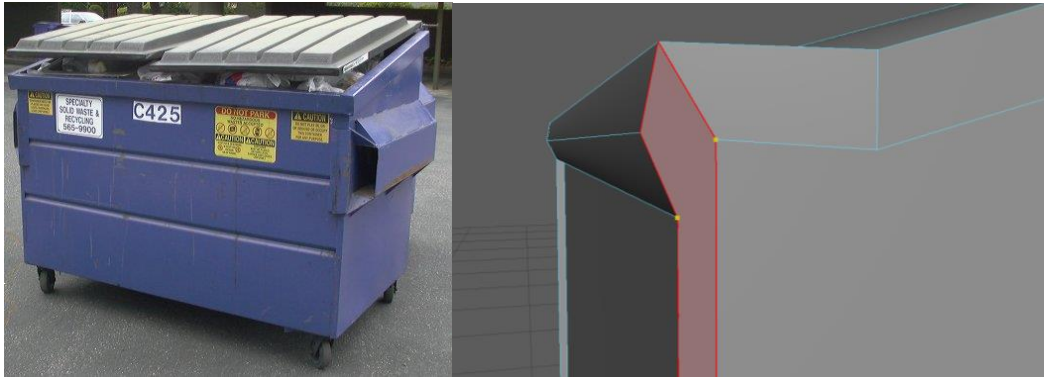
Overall, this test was a fun exercise in using quad-draw although I think there is room for improvement in a few areas. Giving the fish a more defined shape like in the example images for example could make a more visually appealing final model or adding more fins to the lower belly of the fish (like the example image) to make it more realistic.

Week 8-10 // 18/11/2024 – 08/12/2024

Catching up // 03/12/2024

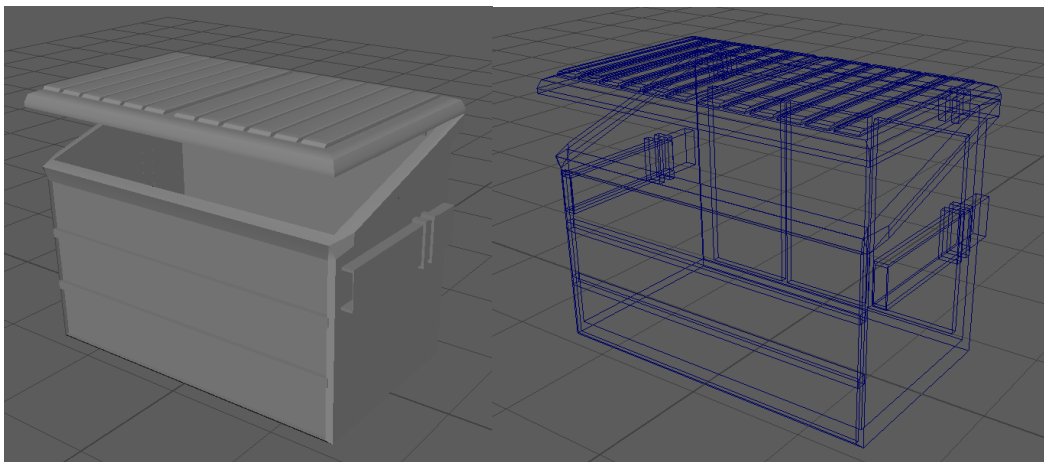
Dumpster Model

For this task, my goal was to make a dumpster model.



[Ref; 21, 22]

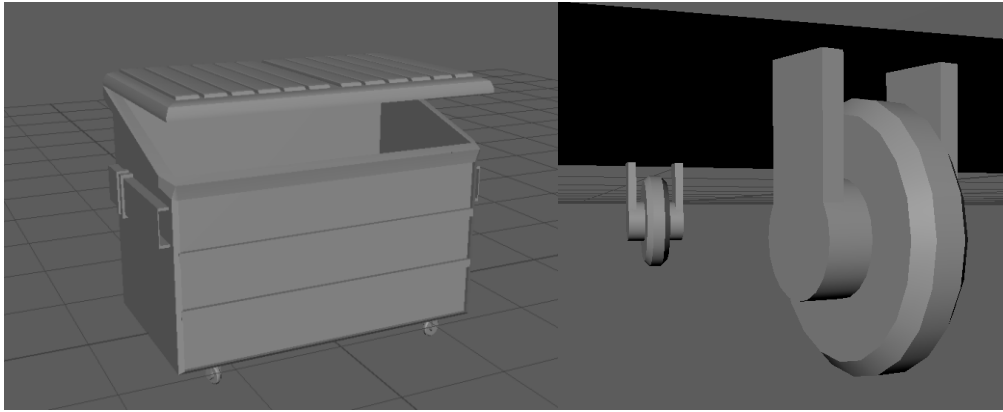
- While making my dumpster I ran into a few problems. One of them was this n-gon which is the first time I've run into one – I solved this by using multi-cut to make them into two objects (which is the yellow dots seen here).
- Here's the main image [21] I was using as reference during this project.



[Ref; 23, 24]

This was the final dumpster before I added wheels because I forgot them initially. I think this model could be improved by having fewer intercepting faces, as I forgot to clear a lot of those up, but otherwise I'm happy with the general shape/design of the bin.

- The lip of the bin was made using 'insert edge loop' and extruding it outwards.
- The base shape of the bin was made by selecting one edge of the bin and pulling it upwards to create the slanted entrance.
- The lid was made using a rectangle that were bevelled on one side to create a curved dome-like square shape. The lines on top were made using the same method.
- The front was bevelled inward to create the front pattern. I used separate cubes to create the two lines, but I probably could've made the same effect using bevelling, which is something to keep in mind for next time to avoid intercepting faces.



[Ref; 25, 26]

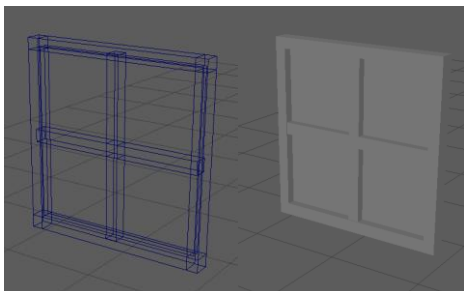
- *Here's the final dumpster including wheels. The wheels were made using the mirror tool and extruding to make the 'stand' of the wheel.*

This model also helped me learn to manage my layers and name my objects – I also learned to combine objects so moving separate sections (like turning the wheels or moving the lid up and down) became easier.

Overall, this is one of the models I'm prouder of. I think the shape turned out well, and visually, the dumpster works effectively as a 3D model. The main thing I need to improve moving forward is avoiding intersections, as previously mentioned.

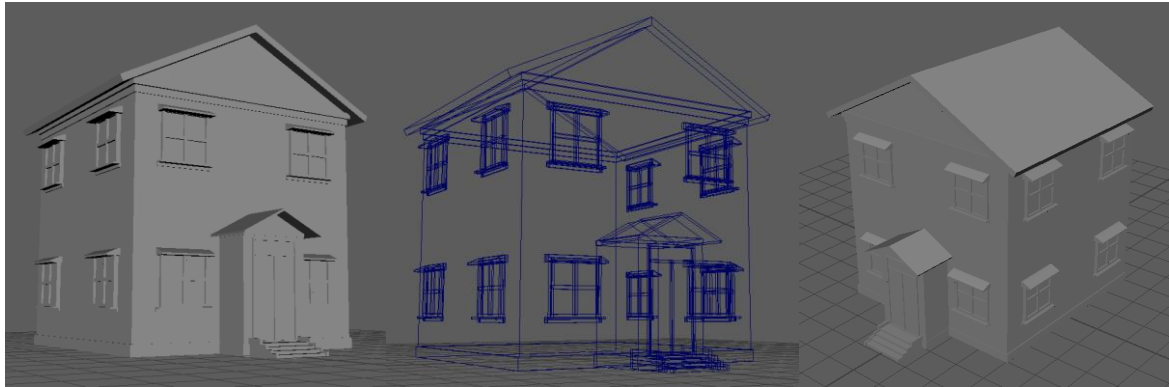
House Model

The largest and final model I set out to make was a basic house. My goals for this project were to create a basic shaped house (block body, slanted roof) but experiment with some more complicated details to add depth to the final build.



[Ref; 27, 28]

- *The windows were made using a mix of extruding and the mirror tool. The edges are an extruded rectangle that has been bridged together on one side, and the middle panel was duplicated to create an even cross shape. In retrospect, this effect could've been made as effectively by using booleans to cut the middle shape out rather than dragging it around the outside. I could've also made this same shape by creating one bordered square and mirroring it 4 ways – however, the method I used was effective enough for this application.*
- *This window was added to the final house using mirroring and duplication to create the 4-window layout.*



[Ref; 29, 30, 31]

- I used a new method for this house called 'Duplicate with Transform' - this is a tool that listens to the last duplication and copies what transformations were done to it, if any. I used this to create the stairs at the front of the house, this ensured that each stair was evenly spaced out without having to manually move each of them.
- For the roof I used the mirror tool on a slanted flat rectangle shape, this helped me make the desired point.
- The 'inside' bit of the roof was made by extruding a section from the base block and bevelling 2 sides – from there I was able to drag the affected edges to a point shape. This was repeated for the entrance at the front of the house.
- I used 'insert edge loop' to create the subtle brims around the bottom and top of the house because, from my research, most houses aren't perfectly square - and I think these subtle details added dimension and realism to the house.
- I used these tutorials to help remind me of some the uses of these tools:
 - Mirror Tool: <https://youtu.be/CBZXA6xX3L0?si=jS5KGYVyTJa1dVom> [32]
 - Duplicate with Transform Tool: <https://youtu.be/sOdUdLZO424?si=qvPfZvzDI3OSJfC-> [33]

Overall, I am happy with this final model, and I believe it shows a good range of the skills I've learnt during this diary's duration. I'm hoping to go on to use these skills to further my knowledge of 3D modelling, and I now feel more comfortable navigating the Maya program in general. My next aim is to start to create more realistic models using these skills, and I'm hoping to go into texturing these models as my skills improve further.

References and Images:

- [1] Modern lamppost 3D model, made by me.
- [2] Lamppost reference - "Kensington Lamp Post 2.25m - Best Seller," *Englishlampposts.co.uk*, 2024.
https://www.englishlampposts.co.uk/street-lamp-posts.html?gad_source=1&gclid=EAlaIQobChMIjt2a5t2wiQMvQpFQBh2jzDAFEAQYBCABEglzgFD_BwE (accessed Dec. 06, 2024).
- [3] Both lamppost 3D models, made by me.
- [4] Both lamppost 3D models (wireframe view), made by me.
- [5] Pot model (wireframe view) work in progress, made by me.
- [6] Pot model (mixed view + internal view) work in progress, made by me.
- [7] Pot model final, made by me.
- [8] Pot model final (soft select wireframe view), made by me.
- [9] In-progress quad draw of can tab, made by me.
- [10] Can tab reference - Ftcdn.net, 2024.
https://as1.ftcdn.net/v2/img/02/22/19/12/1000_F_222191256_pHmKlOI7pz2rjbQ0Ek3UmS82D8zwbINg.jpg (accessed Dec. 06, 2024).
- [11] Work in progress can model, made by me.
- [12] Final can model (wireframe view), made by me.
- [13] Final can model, made by me.

- [14] Final cup and saucer model, made by me.
- [15] Final cup and saucer model (wireframe view), made by me.
- [16] Fish model reference: "Fish Fresh Water 3D Model - TurboSquid 1676173," *Turbosquid.com*, 2024, doi: <https://doi.org/10347008/1920x1080>.
- [17] First attempt at fish model, made by me.
- [18] Work in progress fish model, made by me.
- [19] Final fish model (top view), made by me.
- [20] Final fish model (side view), made by me
- [21] Dumpster reference: *Wikimedia.org*, 2024. <https://upload.wikimedia.org/wikipedia/commons/4/4c/Dumpster-non.JPG> (accessed Dec. 07, 2024).
- [22] Work in progress dumpster with n-gon, made by me.
- [23] Work in progress dumpster, made by me.
- [24] Work in progress dumpster (wireframe view), made by me.
- [25] Final dumpster model, made by me.
- [26] Dumpster wheel close-up, made by me.
- [27] Window model (wireframe view), made by me.
- [28] Window model, made by me.
- [29] Final house model, made by me.
- [30] Final house model (wireframe view), made by me.
- [31] Final house model (alternate angle), made by me.
- [32] M. M. Tool, "Maya's Mirror Tool," YouTube, Apr. 05, 2021. <https://youtu.be/CBZXA6xX3L0?si=jS5KGyVvTJa1dVom> (accessed Dec. 07, 2024).
- [33] Maya, "Maya - Distribute Objects with Duplicate Special & Duplicate with Transform," YouTube, May 26, 2022. <https://youtu.be/sOdUdlZO424?si=qvPfZvzDI3OSJfC-> (accessed Dec. 07, 2024).