

Live Brief

Stylized Merchant Character

By Tabby Seed S013735K

Planning

Pre-production

- Brief Breakdown
- Reference Gathering
- Concept Design and Iteration

Production

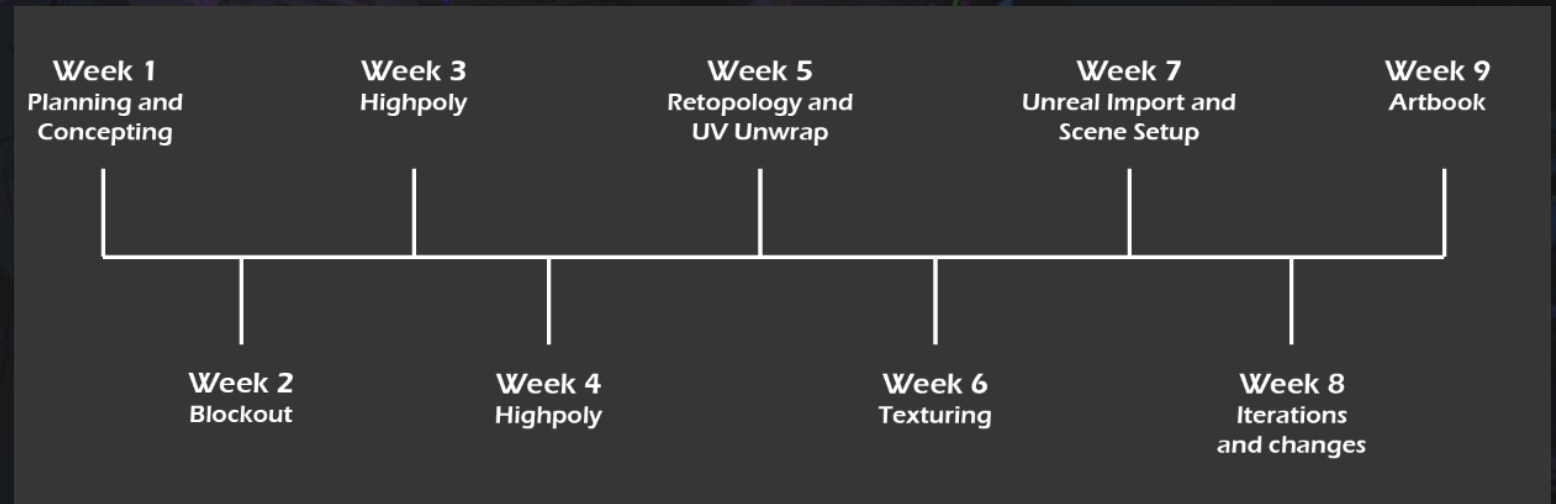
- Blockout
- Highpoly
- Retopology
- UV Unwrap
- Texturing
- Unreal import
- Rigging and posing

Iteration

- Feedback gathering
- Changes to the model

Critique

- Industry comparison
- Final feedback
- Successes and Failures



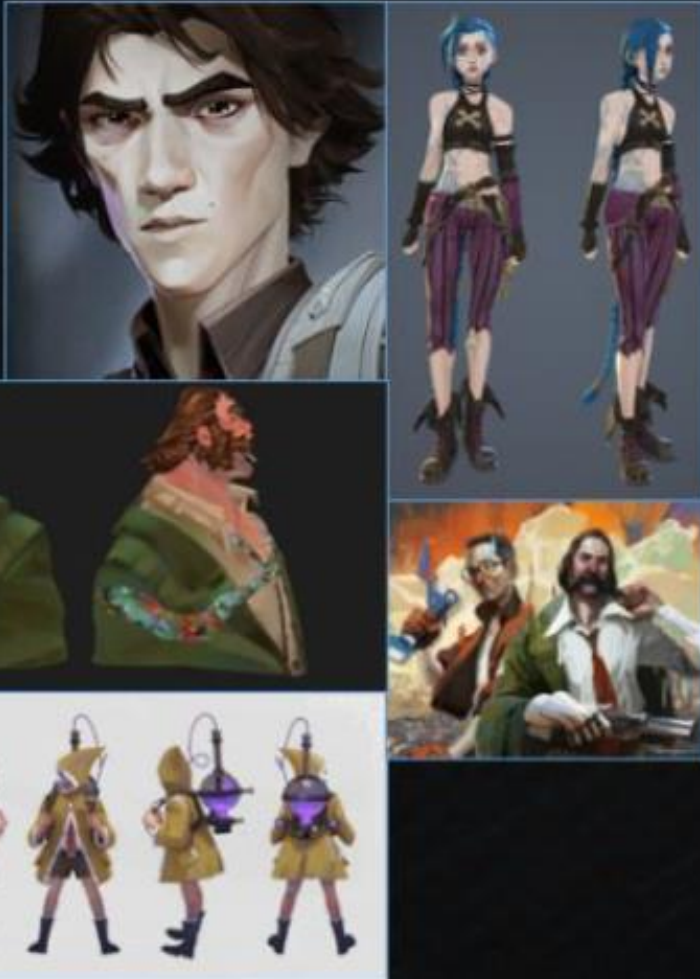
ART TEST | CHARACTER - STYLISED

Design, model and texture a stylised merchant human character.

- **Theme:** A merchant or shopkeeper with a background of your choice. This could be anything from a purveyor of exotic goods to a seller of simple necessities.
- **Style:** A painterly character which takes inspiration from but is not limited to titles such as: Disco Elysium, Arcane, and Sea of Thieves.
- **Sculpting:** Employ a range of stylised sculpting techniques and brushes. Show examples of stylised chunky sculpting with trimmed edges and clean, faceted surfaces.
- **Texturing:** Use a range of modern texturing techniques and software to produce textures with a hand-painted texture effect, where the paint strokes are visible.
- **Presentation:** Present the character in Unreal Engine 5, with or without any supporting props/dioramas.



Examples...



ART TEST | CHARACTER - STYLISED

Art Test Deliverables:

- 5+ High-Resolution Screenshots of your final work showing your character from several angles, showing off all the best aspects of your character.
- A Development Diary within which you will depict your thought process and log your progress throughout the project.

The Budget:

- 50 - 70K Triangles for the character and any props.
- Maximum four 4K textures for the character, props and environments.
- Use **only** what's needed.

Please note, Quixel Megascans or other downloadable assets used for dioramas will not be marked but may be used for presentation.

Project Overview

For this task it is required to concept and create a stylized merchant character for Flix Interactive.

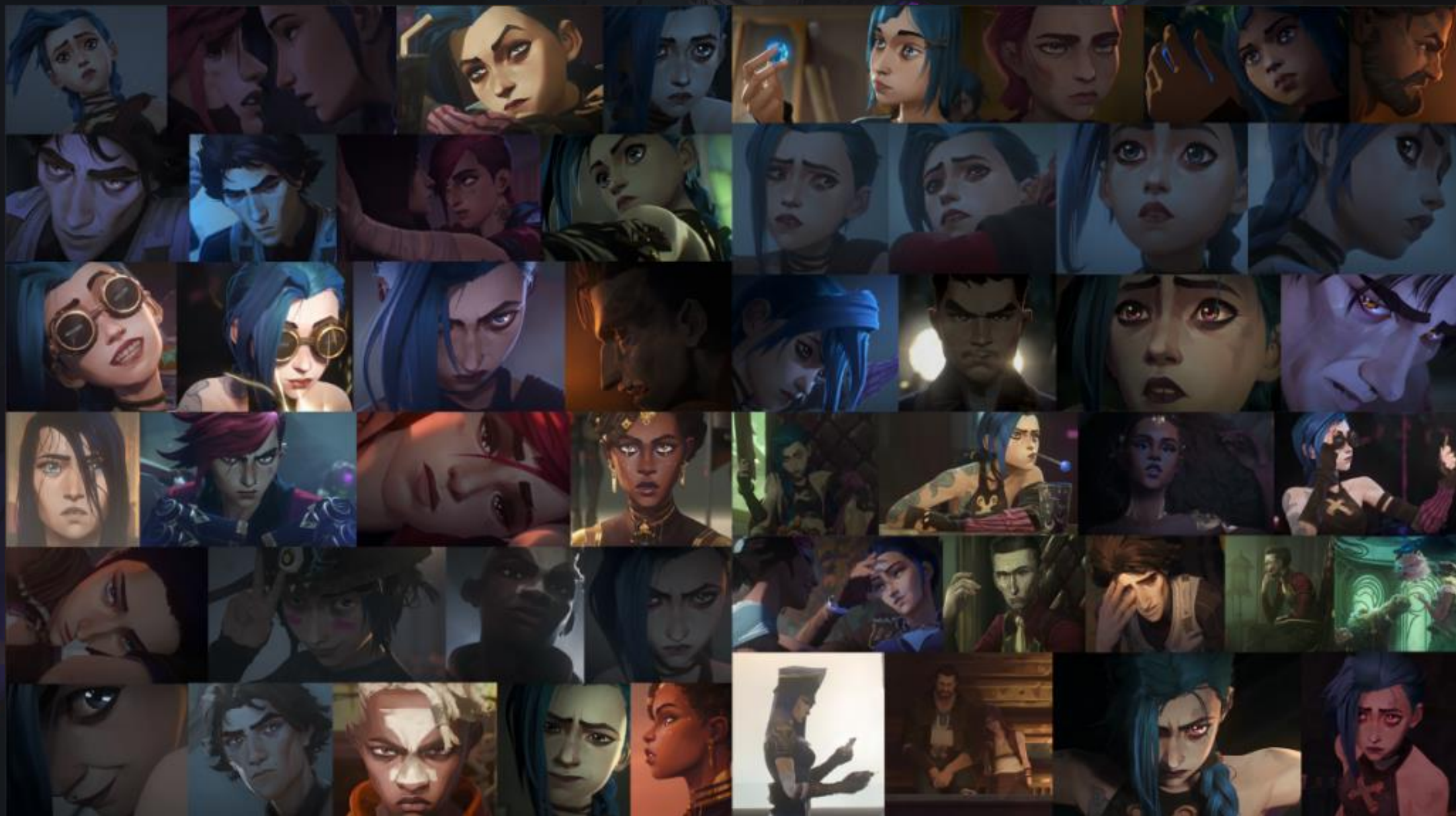
The programs used shall be:

- Z brush
- Maya
- 3DS Max
- Substance Painter
- Photoshop
- Unreal 5

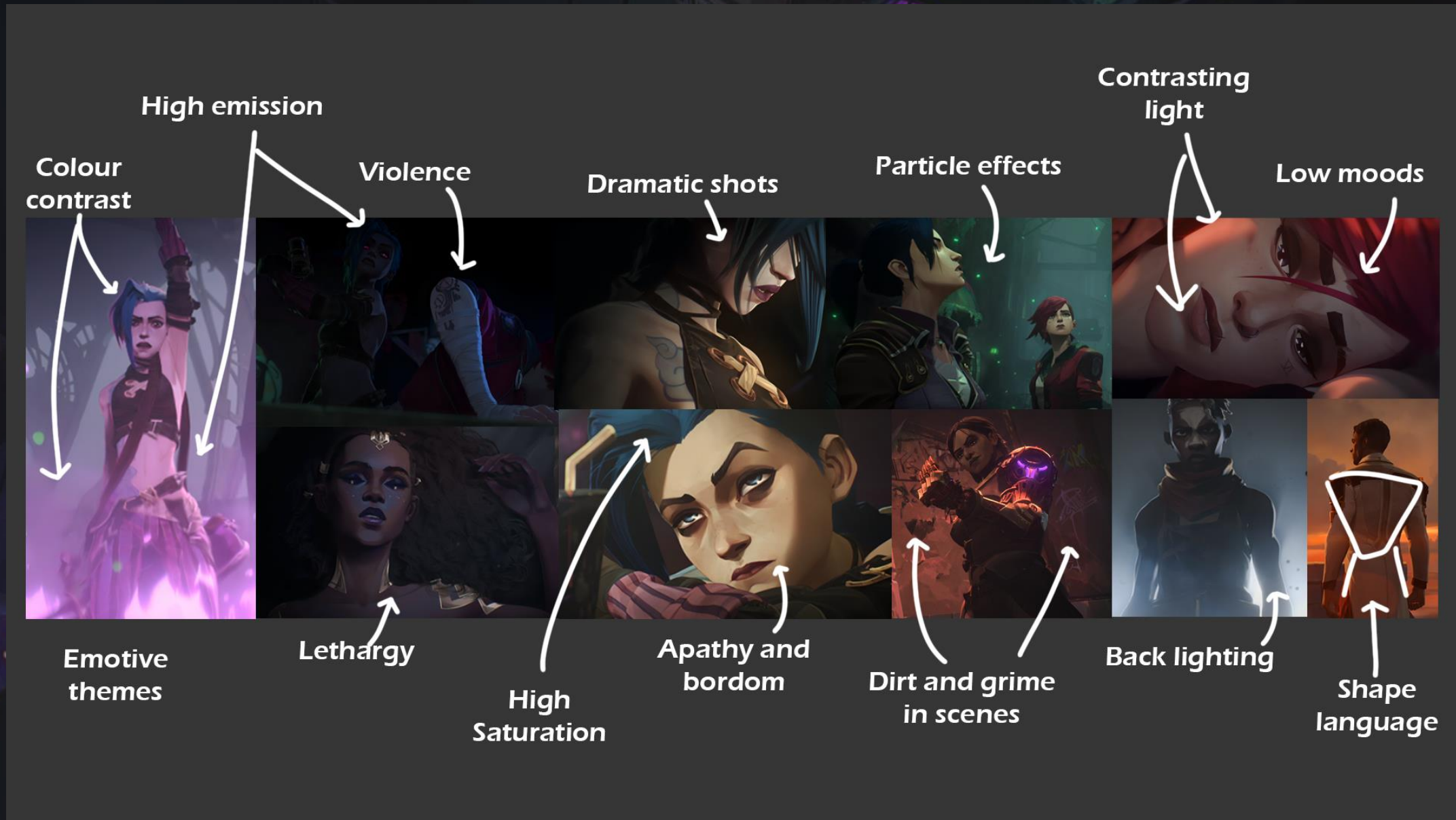
The deliverables for this project are:

- 5 or more High-Res Screenshots
- Development Diary
- Four 4K Texture Sets for all assets
- 70-100k Tri count

Research - Moodboard



Research – Style Breakdown

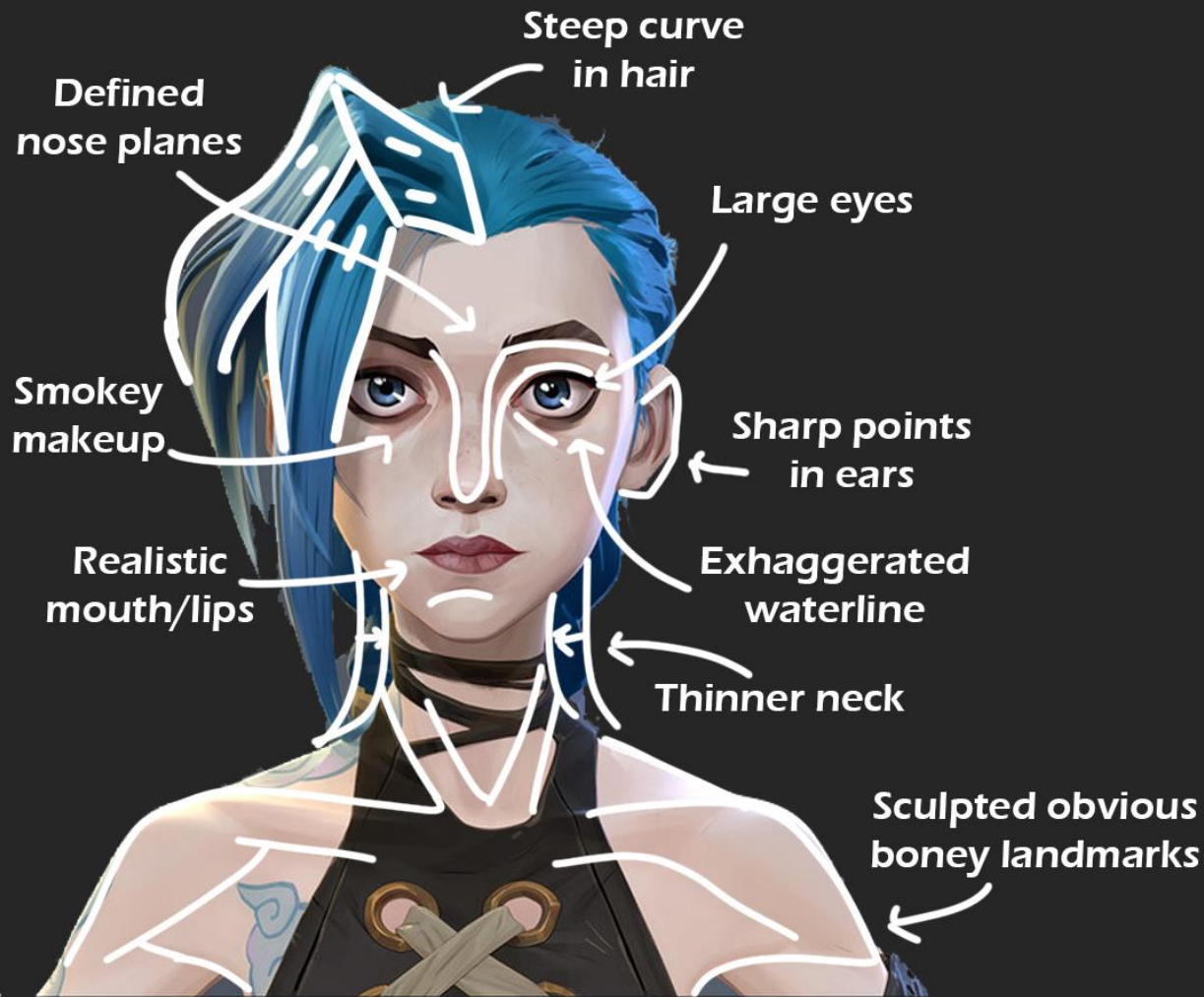


Research - Style Breakdown



- The characters in Arcane generally stand at around 7 and a half heads high.
- Art of the show is generally featured in a relaxed pose instead of A-pose as seen on ArtStation.
- The silhouette is interesting and readable yet still relatively simple. Sharp edges can be seen along the body at the shoulders, hair, and shoes.
- The values show lots of contrast, focus on the eyes and torso. Clothes all way darker than the skin tone and hair.

Research - Style Breakdown



Research - Style Breakdown

- Most characters have high saturation hair colours.
- High contrast saturation vs low in clothes.
- They all have some form of white and of black.
- Accent colours of gold trimming.
- All characters have belts, something on their arms, and long boots.
- Poor characters wear stripes.



Research - Style Breakdown

- This style will be achieved by following references from industry models and artists, as well as inspiration being taken from official art.
- It will also be taken from articles detailing how to achieve the style, and YouTube tutorials from industry experts and fans alike on how to both model and texture in the Arcane style.
- Stylized brush and hair sets can also be taken from art station to enhance the model.

Designing League of Legends' Katarina Arcane-Style in ZBrush & Maya

Ningxuan Yuan
3D Artist

Ningxuan Yuan showed the working process behind the Katarina project, discussed how the blades were made, and explained how they achieved the Arcane style.



KATARINA

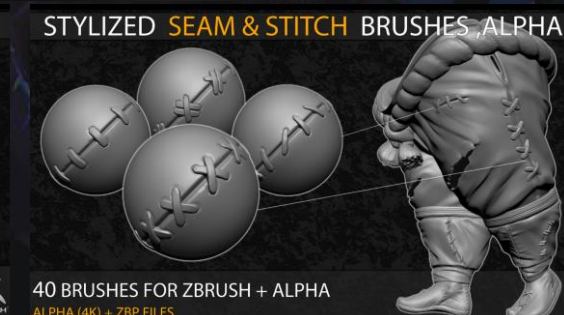
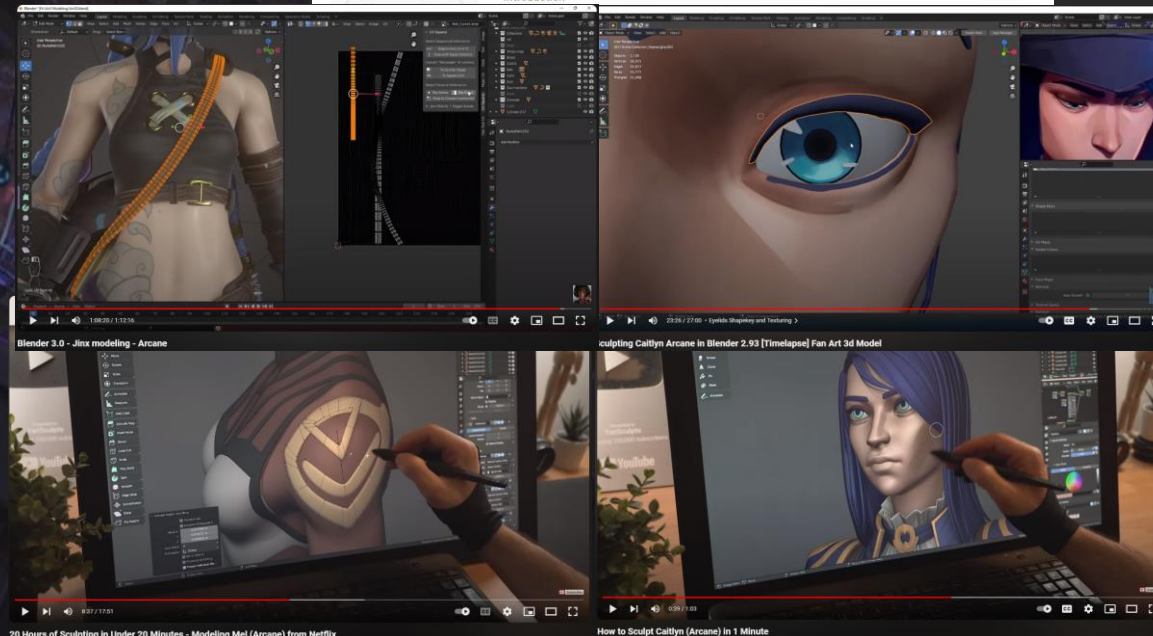
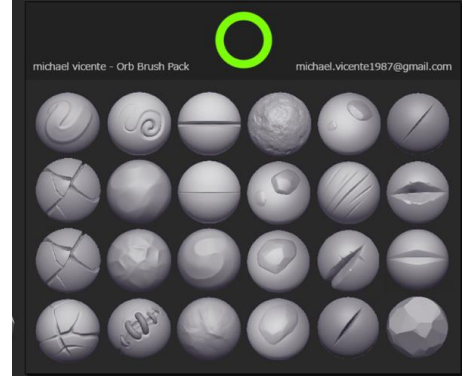


Amplify Impostors for Unity 3d

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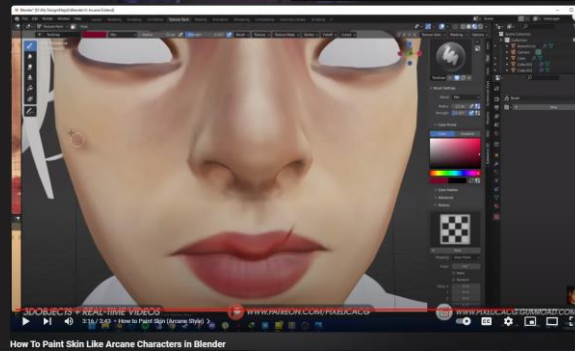
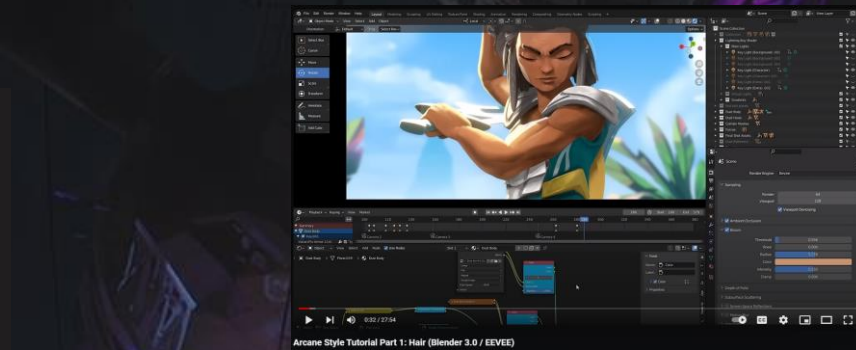
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1-Click Impostor Creator!
Optimize with ease using next-generation Billboard impostors.



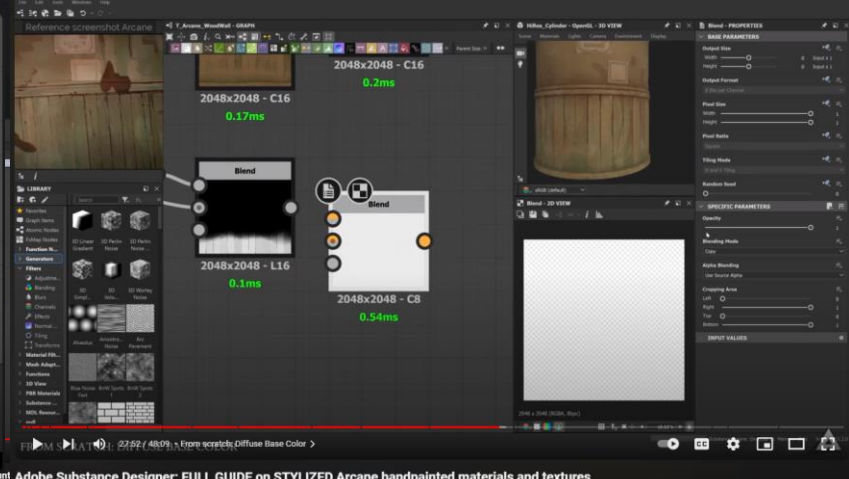
Style Breakdown

This is where the hand-painting starts. I continued by exporting the new diffuse texture and importing it into 3D-Coat. My painting process is very straightforward. My main focus is always to add more definition and highlight to the areas that I want the viewer to focus on. I started by painting lighter values fading from the middle of the face, which gives the face more depth. Additionally, I tried painting a lot of different hues in the face such as reds, greens and blues. I treat this process no different than painting a character in a 2D illustration.



Tribute to "Ysera the Dreamer"
World of Warcraft Fan Art

Fanny Vergne
www.fannuvergne.com



Inspirational References and Considerations

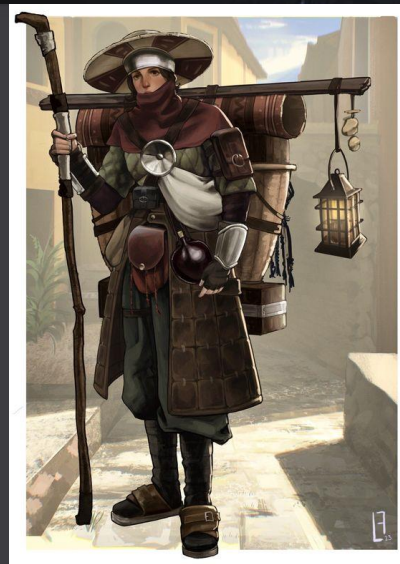
Requirements

- Humanoid character
- Arcane/Disco Elysium/Sea of Thieves
- Merchant of some kind
- Hand painted textures
- Presented in Unreal engine 5

Considerations

- Wealth
- Products
- Gender
- Height
- Weight
- Environment they're from
- Age
- Race
- Personality
- Colour Palette

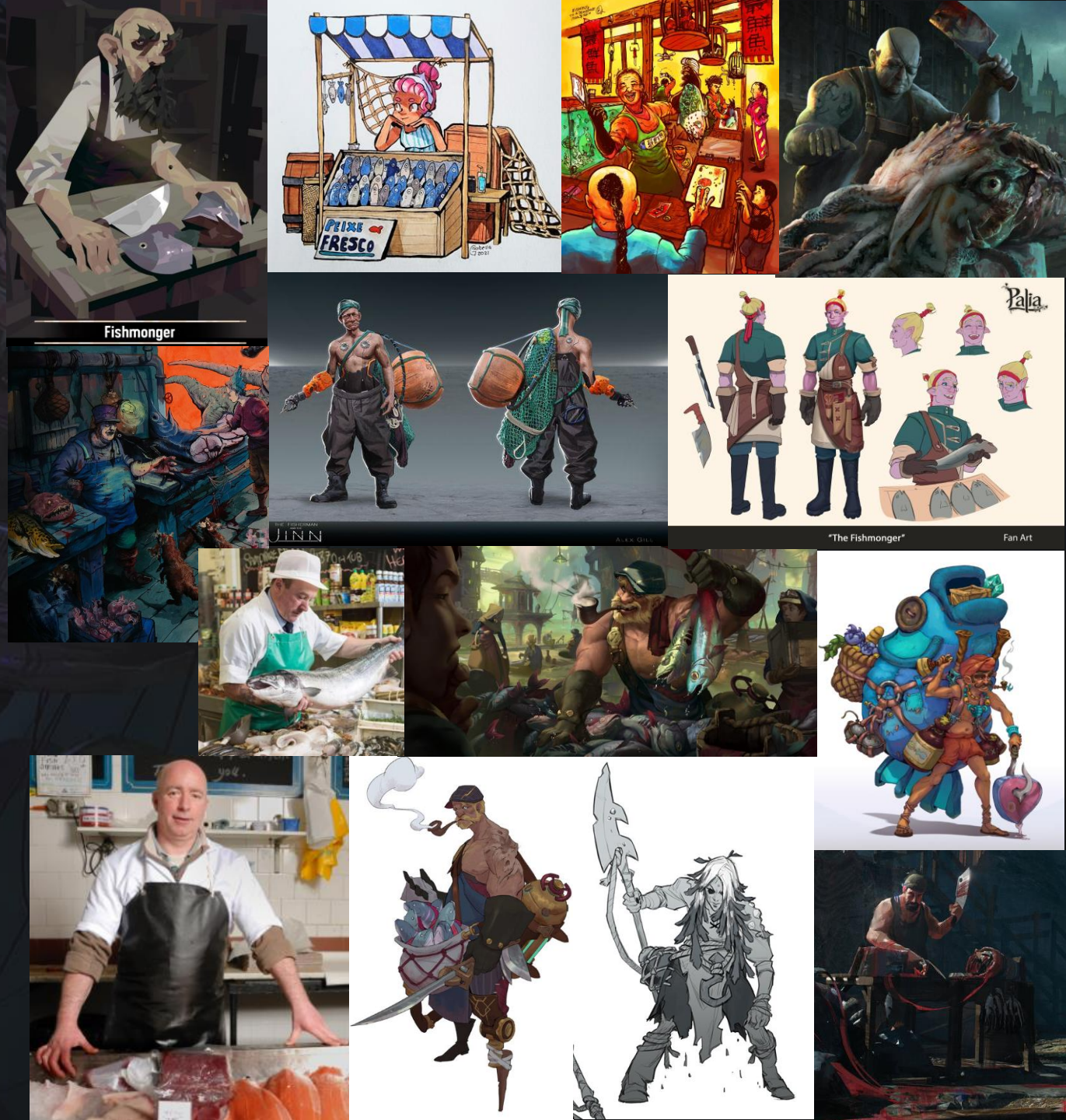
Inspirational References and Considerations



Concept Development

Fishmonger

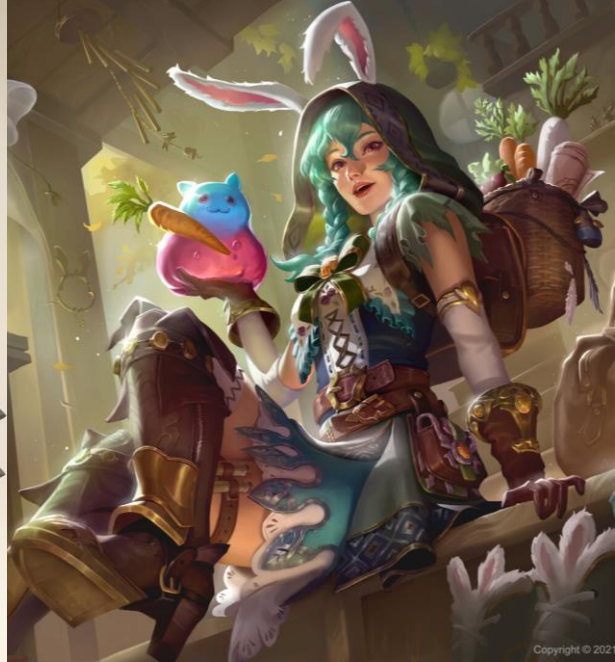
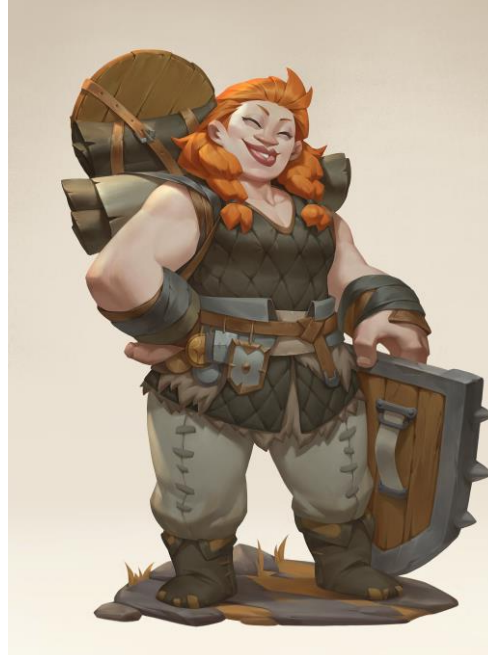
- Muscley
- Works on the docks in the sun
- Tanned
- Confident and working class
- Apron
- Knife
- Netting
- Gloves
- Eyepatch? Injuries?
- Hat/cloth to keep hair out of face



Concept Development

Pet merchant

- Relatively wealthy
- Male or female
- Busy city - stall or brick and mortar
- Shy and friendly - family owned
- Open and welcoming
- Pet related items - treat bag animal ear headband



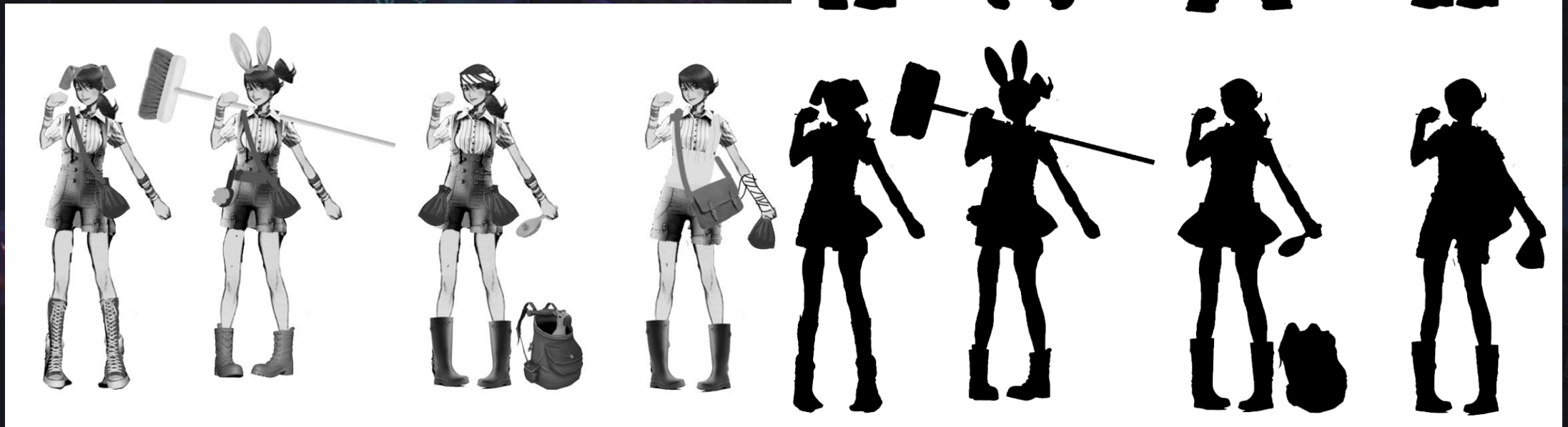
Concept Design

- Final idea for the character is the pet merchant.
- Happy go lucky character with lots of energy.
- The concepts are photobashes of several different iterations taking consideration on the types of clothing, footwear and accessories someone would need.



Concept Design

- Values show more work needs to be done pushing the darkness of the clothes to try and draw the eyes to the face, ears and satchel/tool belt as these are the parts that suggest the job.
- Bunny ears is the most interesting silhouette and stands out the most due to the ears, the broom and the attachments on the hip.



Concept Design

- Experimentation with coloured was started.
- To match style clothes, need to be darker and have an element of white or black, as well as less saturation
- A use of accent colours such as gold or a complimentary colour in places of focus.



Final concept

For the character it is important to have a purpose for each part of the design.

- The bunny ears suggest an animal centric person
- The bucket and brush suggest they are hard working
- Ponytail hair suggests they work in an environment hair needs to be out of their face
- Toolbelt and satchel suggest the person has many jobs and prepared for anything
- The shirt and playsuit make it easy to move around, however still presentable for customers
- The boots are hard wearing and show they need something like that for their job



Final concept

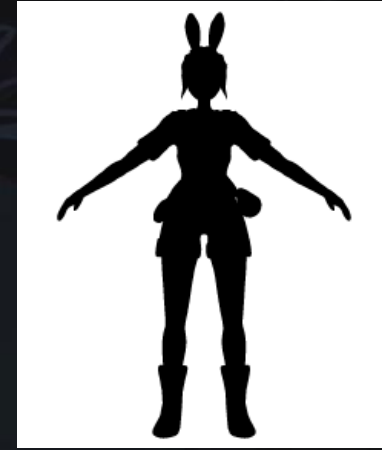
Asset list

- Bunny ears
- Hair cap/bangs/ponytail
- Head
- Body - arms/legs
- Shirt
- Playsuit
- Bracelets
- Toolbelt
- Brush
- Satchel
- Bandage
- Boots
- Bucket Brush

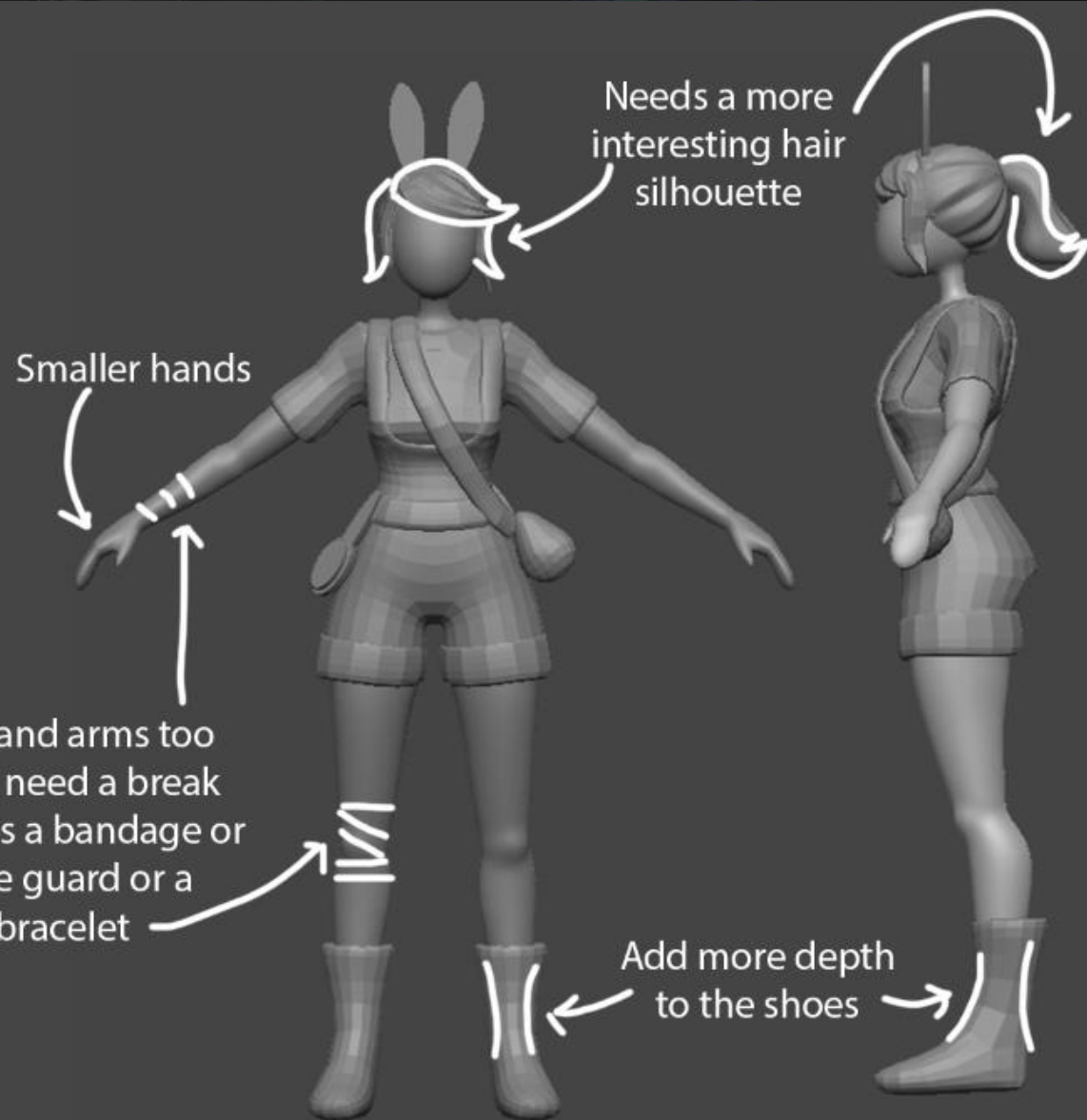


Blockout Development

- The first iterations of the blockout
- Following the Zbrush female model, then moving to the proportions of the style
- Adding clothes and forming a bigger head
- Referring to references often, and keeping an eye on the silhouette



Blockout Development



Needs a more interesting hair silhouette

Smaller hands

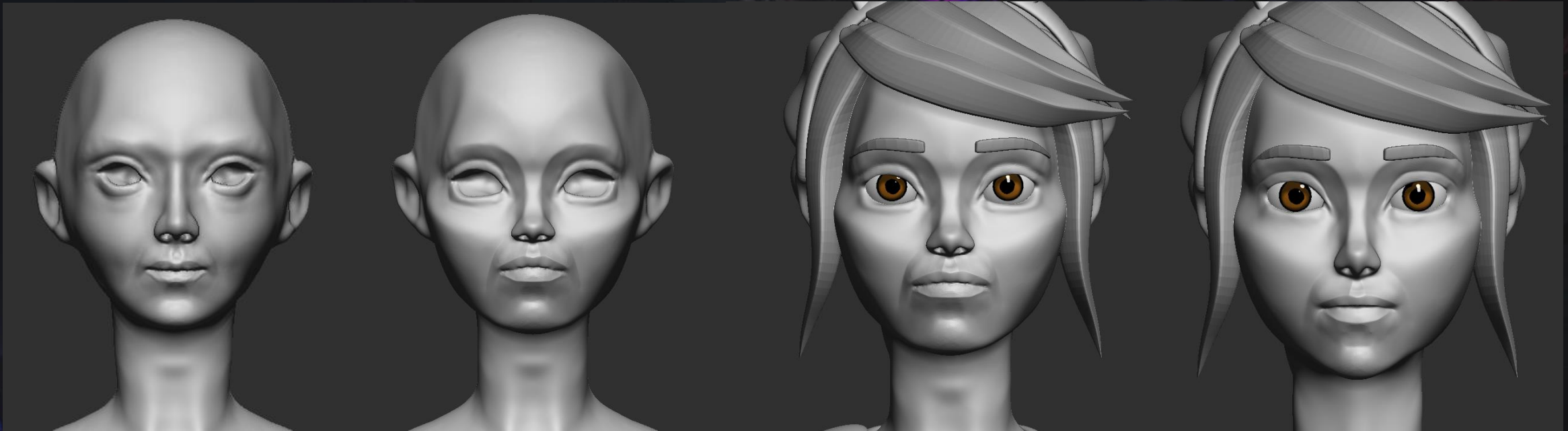
Legs and arms too plain, need a break perhaps a bandage or knee guard or a bracelet

Add more depth to the shoes

Blockout Development



Face Development



- Face Development began from basic facial proportions
- Moved the features around and using the pinch tool to create the chunky look
- Adding clothes back and moving the face around from there



Feedback

Daniel Pitt

Posted March 26



Student

354

PEER FEEDBACK: By Daniel Pitt

Great work/ progress. You have clearly understood the project / brief

you have great breakdowns, clear information and nice paint-overs that show how you understand the work, where you going, thoughts and ideas you may take etc.

But there are some things I think you may want to consider for improvement/ adjustments that could be made for a different approach

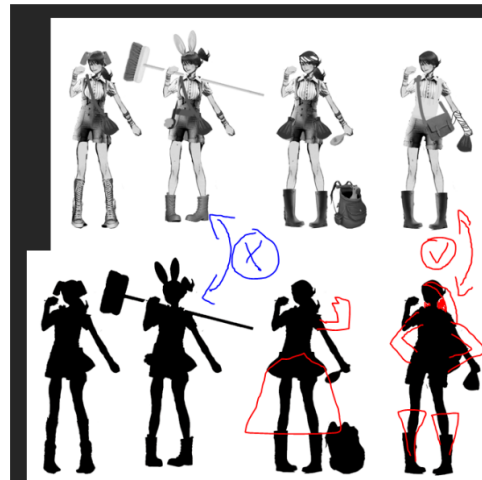
1: Please post this Colour Theory slide onto your forum and any other important slides that show how you are breaking down the project so we can see your understanding of the project - knowing you, you probably probably do this later anyway

Concept Design

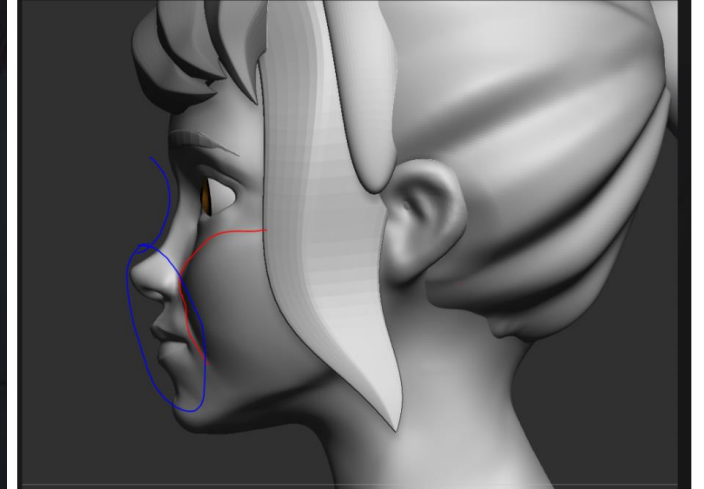
- Beginning to play around with high saturation colours
- To match style clothes, need to be darker and have an element of white or black, as well as less saturation
- A use of accent colours such as gold or a complimentary colour in places of focus.



2: Minor adjustment could be made to the silhouette. I had a similar idea with my FYP where I just took my designs and put them into black but my supervisor made me create multiple different poses and silhouettes so that my project looked better and more professional. Time will greatly effect if you get round to this as modelling the work is definitely more important but having alternative poses that you haven't already designed would be nice.



The fact your already sculpting your tertiary forms onto your character is great and shows that your flying through the project but I'd like to quickly point out that to me this RED line contour feels prominent, if this was done on purpose that's fine but if not all it needs is a slight position adjustment either further in or up the face. The BLUE line however looks fine but I think the lack of details in the current form is just throwing me off, the same applies to the nose indent but it may need a slight in-dent adjustment.

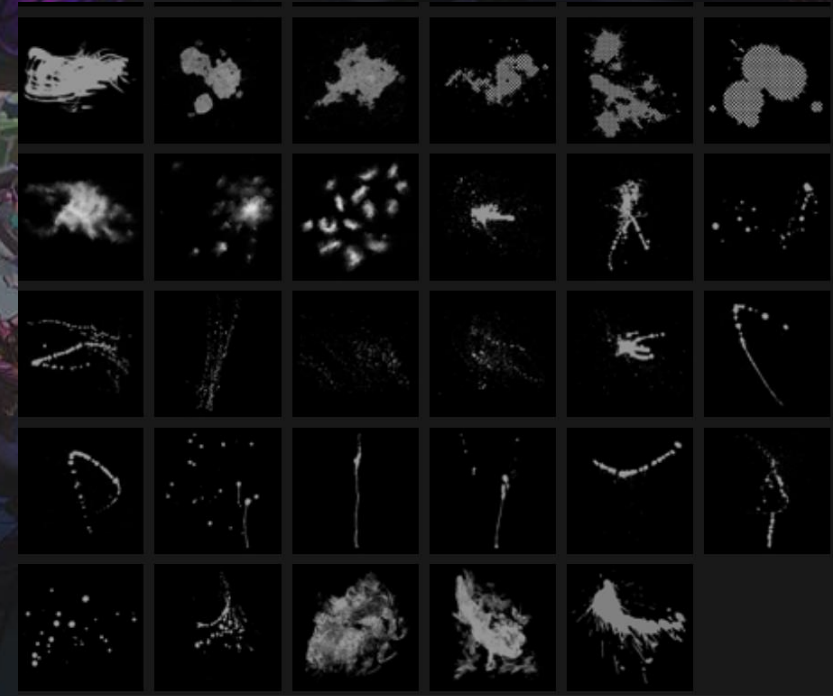
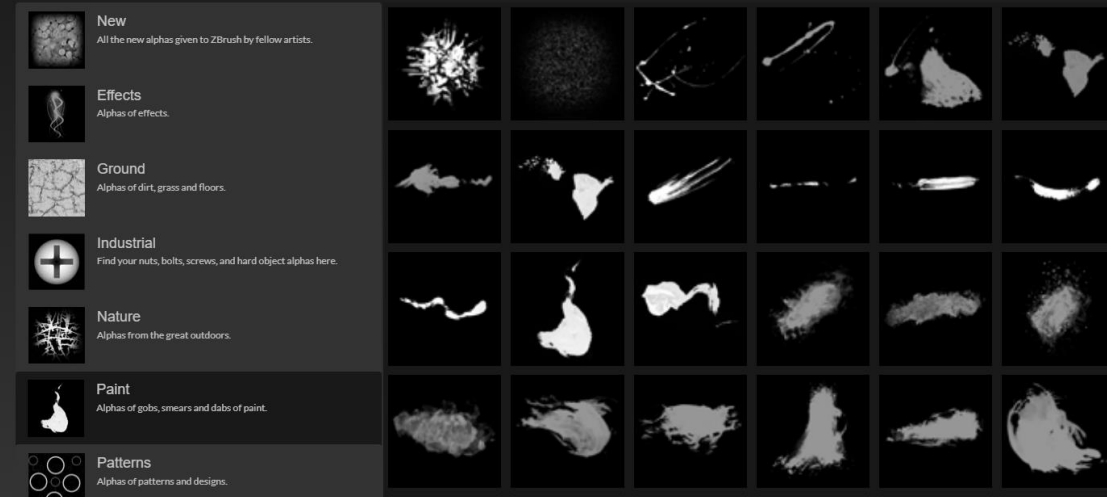


- Look into different brush packs and alpha packs for substance to help break up the painting from the basic alphas
- Bubble backpack with an animal inside
- Cat carrier
- Bird cage attached to the belt, or used as earrings
- Bucket and the brush is generally disliked so remove those and add in the ideas above
- Gloves for handling pets
- a net for catching pets could be incorporated

Feedback

Welcome to the ZBrush Alpha Library

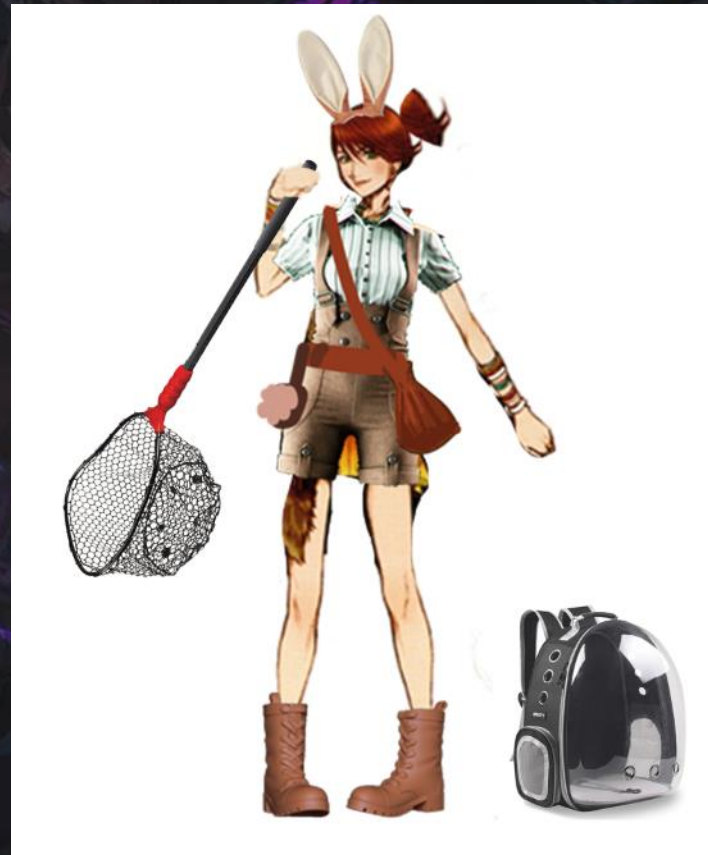
We have created a library full of amazing Alpha materials from ZBrush artists who wish to share their work with the ZBrush community. This library gives you one unique location to view, download, and begin sculpting using any of the alphas found in this library. See what ZBrush can do with your alphas. Enjoy the search.



- Can use zbrush alpha packs for painting
- Poly paint first before taking it into substance for a base

https://pixologic.com/zbrush/downloadcenter/alpha/?_ga=2.253103949.572472251.1714663955-59746371.1714663955

Feedback



- Added in the pet carrier and the earrings
- Added net and bubble backpack

Feedback

Hey Jack!

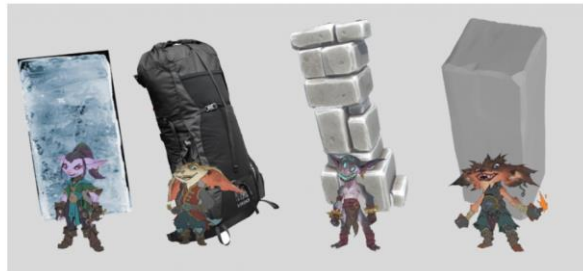
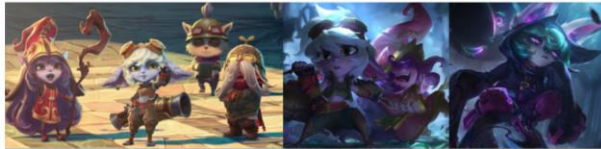
Here is my peer feedback for you.

Research:

Very solid deconstruction of the brief presented with paint overs and reference images. Could use a few more reference images to enhance the visual library for the project.

Some real thought has gone into conceiving the character and adding elements of storytelling such as what items they would carry as well as the type of merchant they are. Also very nice to see the silhouetting of the character in different shapes and sizes. One thing I have picked up on is the decision on what the block is, isn't obvious to anyone following the project. It would be worth photo bashing some ideas together to help the direction of the work.

With the direction of using a smaller character for your design, I would suggest going back and doing some more research on yordles in the League universe to get a better understanding. What people liked about the concept is the huge head and little body vs the huge item it's lugging on it's back.

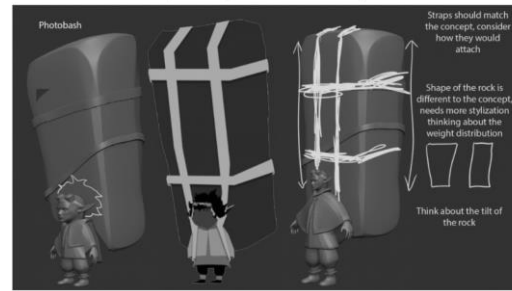
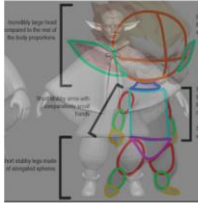


Think about what the ice would be for, or whether to trade this idea in for a huge backpack full of random objects. Could be a carpenter bringing supplies to sell bricks and materials for building. Also could be a feral type of yordle that is selling old ruins and huge artifacts.

Nice to see your swot analysis. You can see you know where to improve and what to work on which you can use in this project to succeed. To push your conceiving further I would again have a look at different yordles and see if you can take from their colour palettes and create a nice looking palette, don't forget to use Adobe colour picker and explore as you will find some nice things here! <https://color.adobe.com/es/lore>



In terms of your character block out so far, I would watch how the proportions have moved as it looks less like a yordle and more like a tiny little man. You need to make the head a lot larger and the body a lot shorter, yordles have quite a different set of body proportions to normal humans. If you don't want to play around too much with the head proportions you could alternatively add big hair or a big hat to accentuate the proportions more.



There are some really good references of yordles from this video with upclose shots too:

<https://www.youtube.com/watch?v=Mj4wvsnT1s>

And a riot games member modelling a yordle in zbrush:

https://www.youtube.com/watch?v=JL72R9K_Dy



Can't wait to see where this goes once you begin adding details to the model and refining it!

Don't forget to keep an eye on the assessment docs as you go to make sure you're hitting the criteria.

Assessment Criteria

Component 1:

Project artefact in answer to a brief

Research and Development

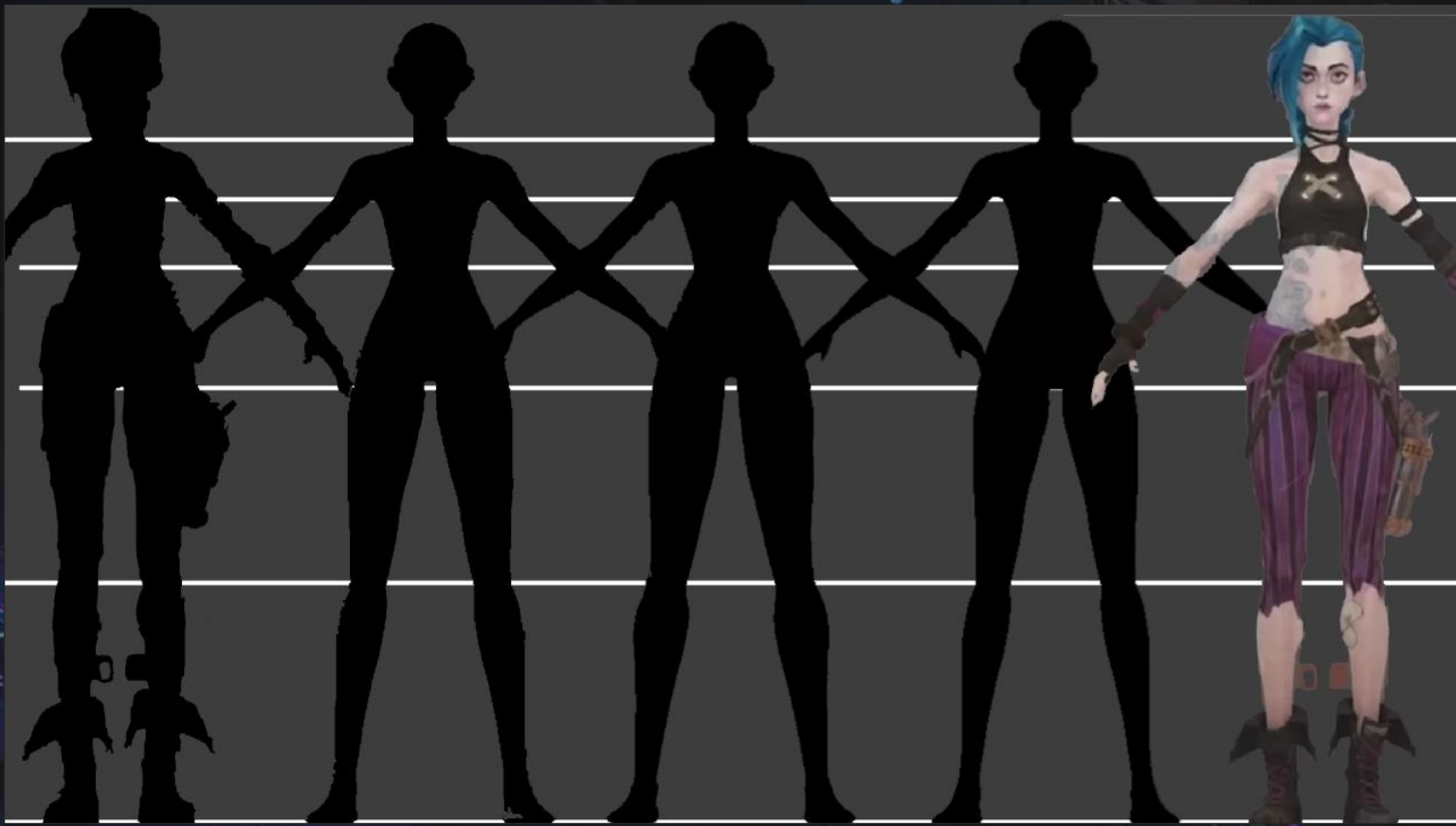
Research is detailed and considered research shows including a full breakdown of the given brief detailing necessary goals.	[10%]
Demonstrates a fully rationalised design and production process for the development of the brief has been completed.	[10%]
Solutions towards the Live Brief	
The solution and deliverables meet the expectations set out in the brief, adhering to all the requirements, limitations and constraints and are well produced.	[10%]
High quality deliverables with excellent consideration for presentation, showcasing creativity, distinctiveness, and flair in their production.	[10%]
Employability	
Submission of a high-quality Rockstar Entry, along with well formatted and complete CV, LinkedIn Profile, and Animation Portfolio.	[10%]

Games Art Briefs should include:

- Completed beauty renders of your solution to the brief.
- Construction sheets of assets (i.e. edged faces/wireframes)
- A shot of an asset open in Unreal Engine (measurements)
- High quality renders of models/high poly models.
- A Showcase of materials and decal.
- Textures flat and (if necessary) hair cards (characters)
- Texture textures showcased on Material Balls
- Trim sheets on a flat plane
- A progress gif of your development (from a static composition camera)

- Posted feedback
- Discussion on research
- References
- Proportions
- Concepting
- Colour palettes
- Modelling paintovers and discussion
- Video references
- Assessment doc information

Development



- Redesign of the body proportions in line with style



Development



Asset list

- Bunny ears
- Hair cap/bangs/ponytail
- Head
- Body - arms/legs
- Shirt
- Playsuit
- Bracelets
- Toolbelt
- Brush
- Satchel
- Bandage
- Boots
- Bucket Brush

Development



- Took a reference from art station
- Added in wrinkles
- Added buttons

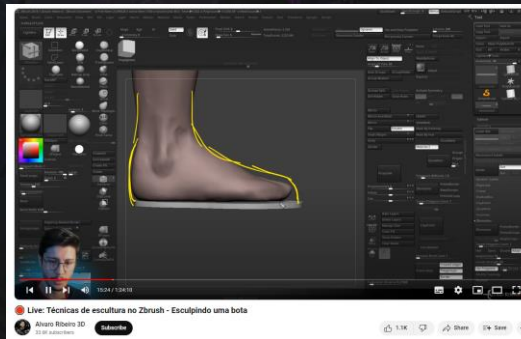


- Separates straps
- Added in seams
- Added collar

Development



Subdivision
4



- Started work on the boots
- Added base
- Added front and back parts of the shoe
- Changed the shape

- <https://www.youtube.com/watch?v=-LtBZ36ymSE>

Development



- Added subdivision
- Added poly paint
- Removed straps and added as a separate object
- Lowered the belt and added in buttons
- Added hands
- Refined the knees
- Began working on the boots
- Added shirt collar
- Added wrinkles to the playsuit

Development



- Turn around of work so far

Development - Polypaint

- Added colour zones to the face
- Added warm zones on the knees and elbows
- Used the spray to paint colour variation in the skin
- Added in variation on the playsuit, cool blue shades for the dark spots and orange shades for the lighter parts
- Added in lines for the shirt to match the concept
- Changed the material to mat cap white



Development

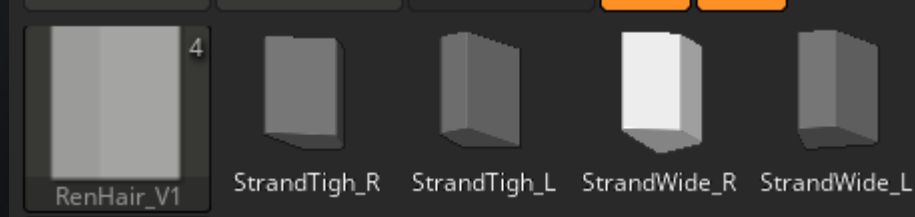
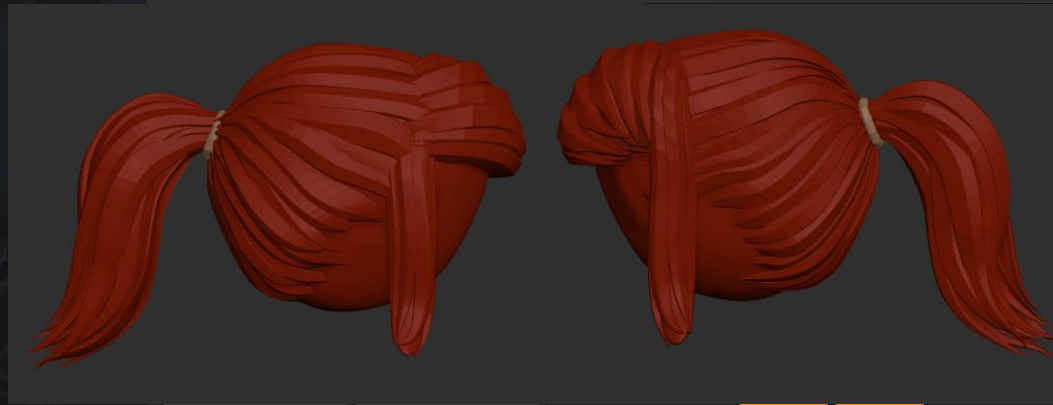


- Head shapes not quite right so needed a rework
- Removed the starkness of the nasal label fold
- Eyes were made smaller
- Flattened the bottom of the nose
- Deepened the areas under the eyes



Development - Hair

- Hair was created with Ren Hair V1 brush
- This brush uses low poly when creating the strokes which makes it easy to use for the retopology
- A sphere was placed over the head and then strokes were layered over it to create this effect.



Development Pipeline – Highpoly

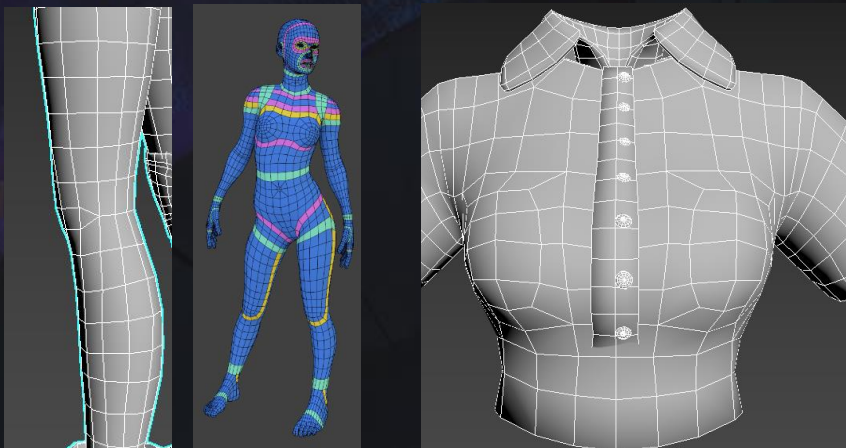


Development Pipeline - Highpoly

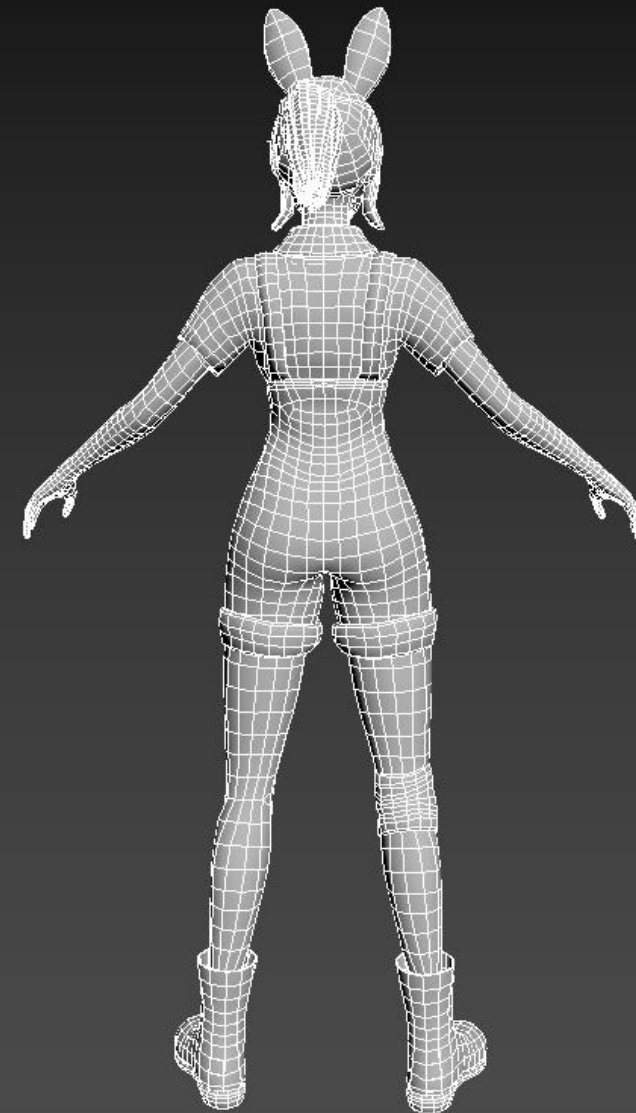
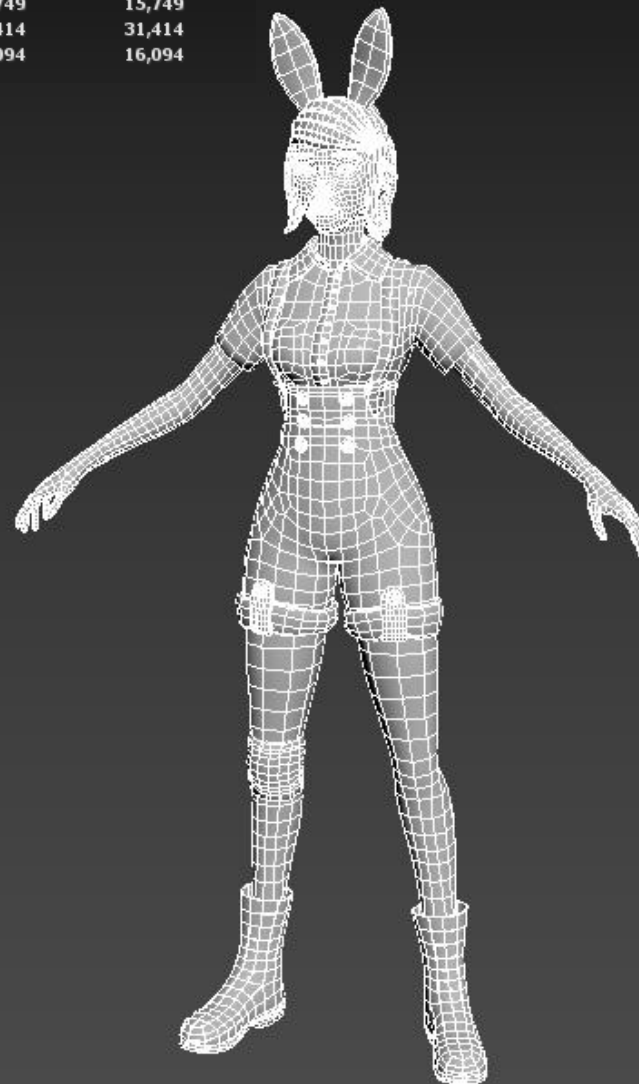


Development Pipeline - Lowpoly

- The retop ended at 31k tris which is well within the allocation
- Animation loops were taken into consideration at the knees, making them collapsible
- The chest considers the breasts movement
- Mostly even quads that flow well and have no spirals

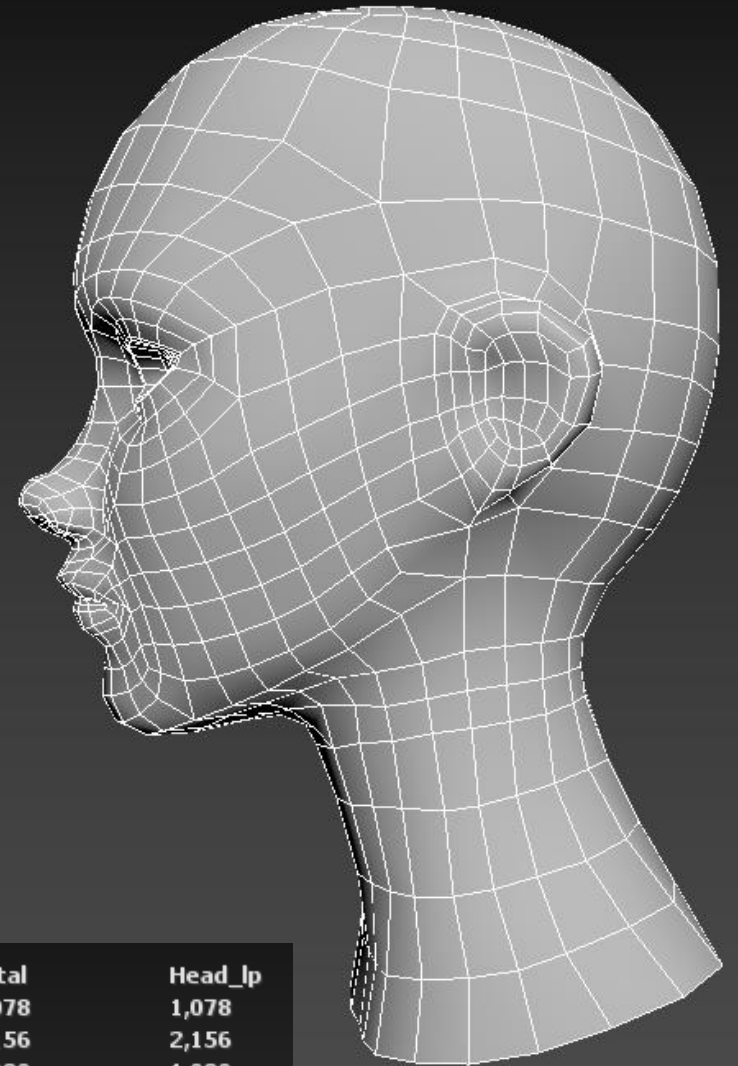
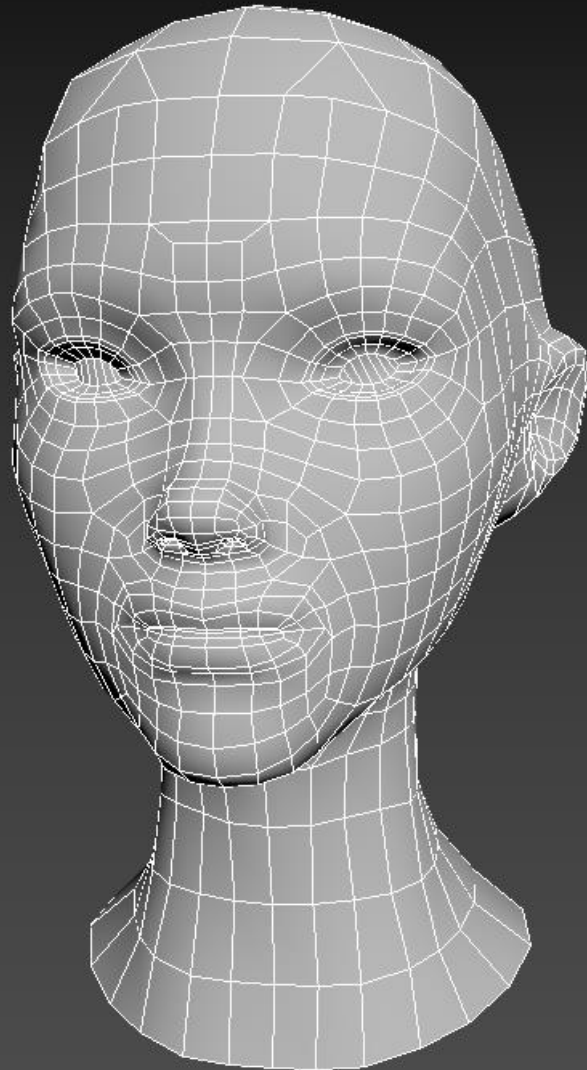
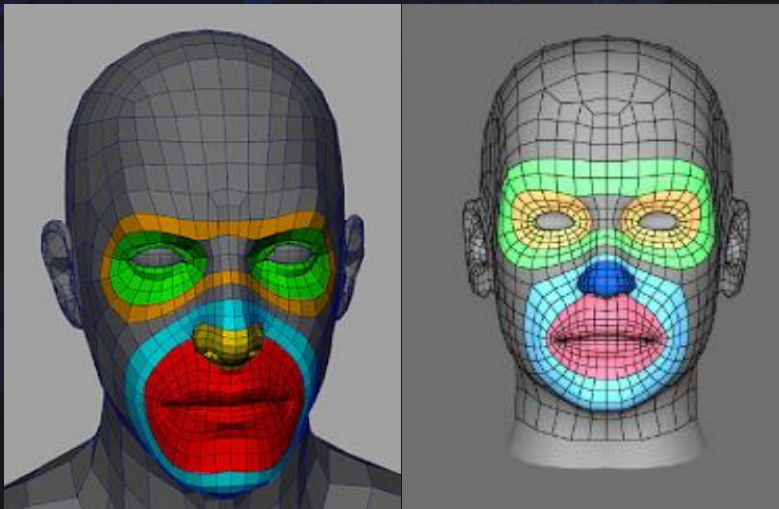


Total	Merchant_lp
Polys: 15,749	15,749
Tris: 31,414	31,414
Verts: 16,094	16,094



Development Pipeline - Lowpoly

- Face added up to 2k tris
- Animation loops around the eyes, nose, eyebrows, mouth and ears.
- Quads flow together around the model

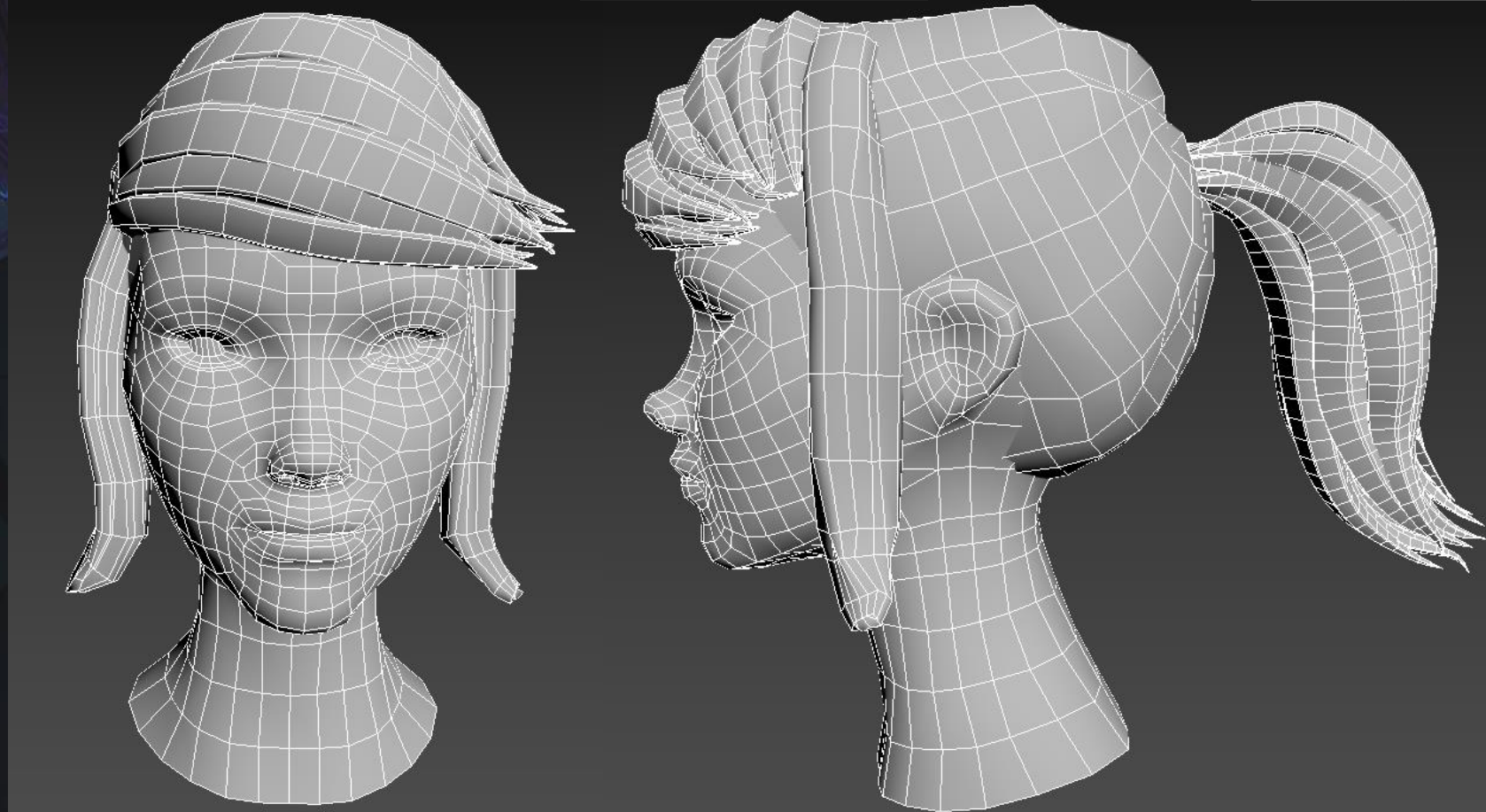
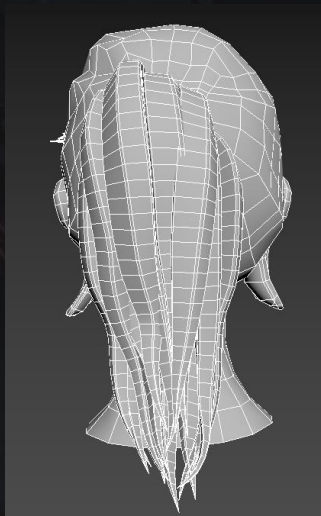


	Total	Head_lp
Polys:	1,078	1,078
Tris:	2,156	2,156
Verts:	1,089	1,089

Development Pipeline - Lowpoly

- Denser topology in the hair to allow more movement when animated
- Hair cap is considerably lower as this part won't move around at all like the bangs and the fringe.

Polys:	15,749	6,331
Tris:	31,414	12,664
Verts:	16,094	0



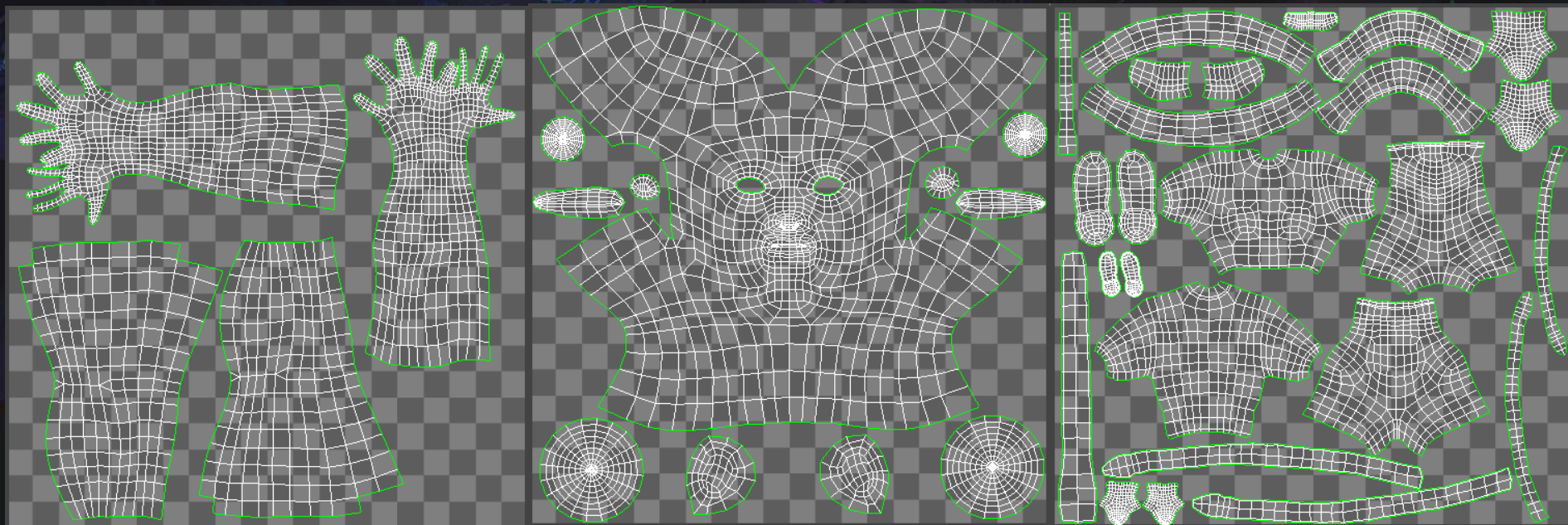
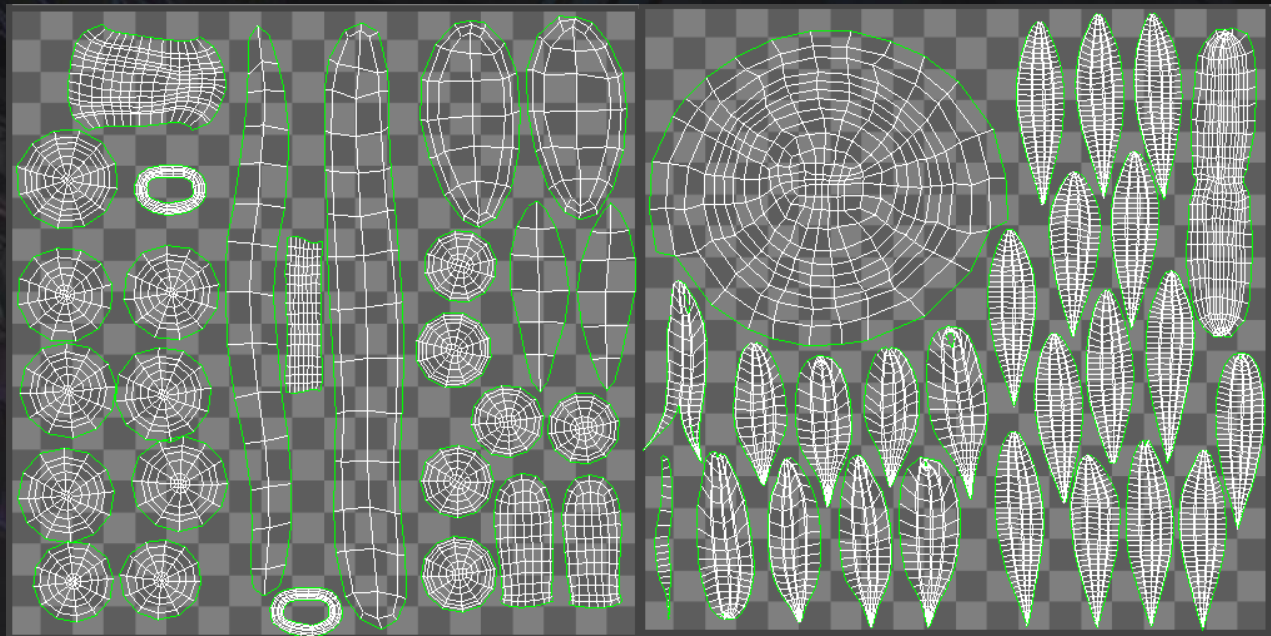
Development Pipeline

- Smoothing groups are applied to the model to do most of the work with the topology
- Texture sets separated into 5 sets
 - Head
 - Hair
 - Accessories
 - Clothes
 - Skin
- These are going to be 1 4K map and 4 2k maps



Development Pipeline

- Uvs set out with small gaps apart from the skin as there were only 4 islands



Development Pipeline

- The vertex paint was taken from the zbrush file with the ID material which allowed for a good initial base
- Render settings for Substance were changed to better simulate that in unreal



Development Pipeline

- Use of baked highlights and shadows in the base colour view helped tone the colours
- Using the knife tool to add a painterly effect with sampled and then slightly altered to help blend the colours

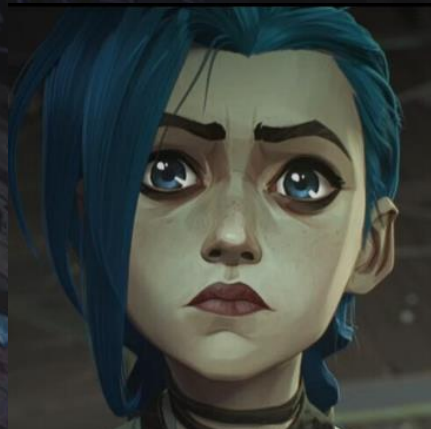


- Dirt generator used to add colour variation
- Colours layered and overlaid onto parts of the model to change how warm or cold they were



Development Pipeline

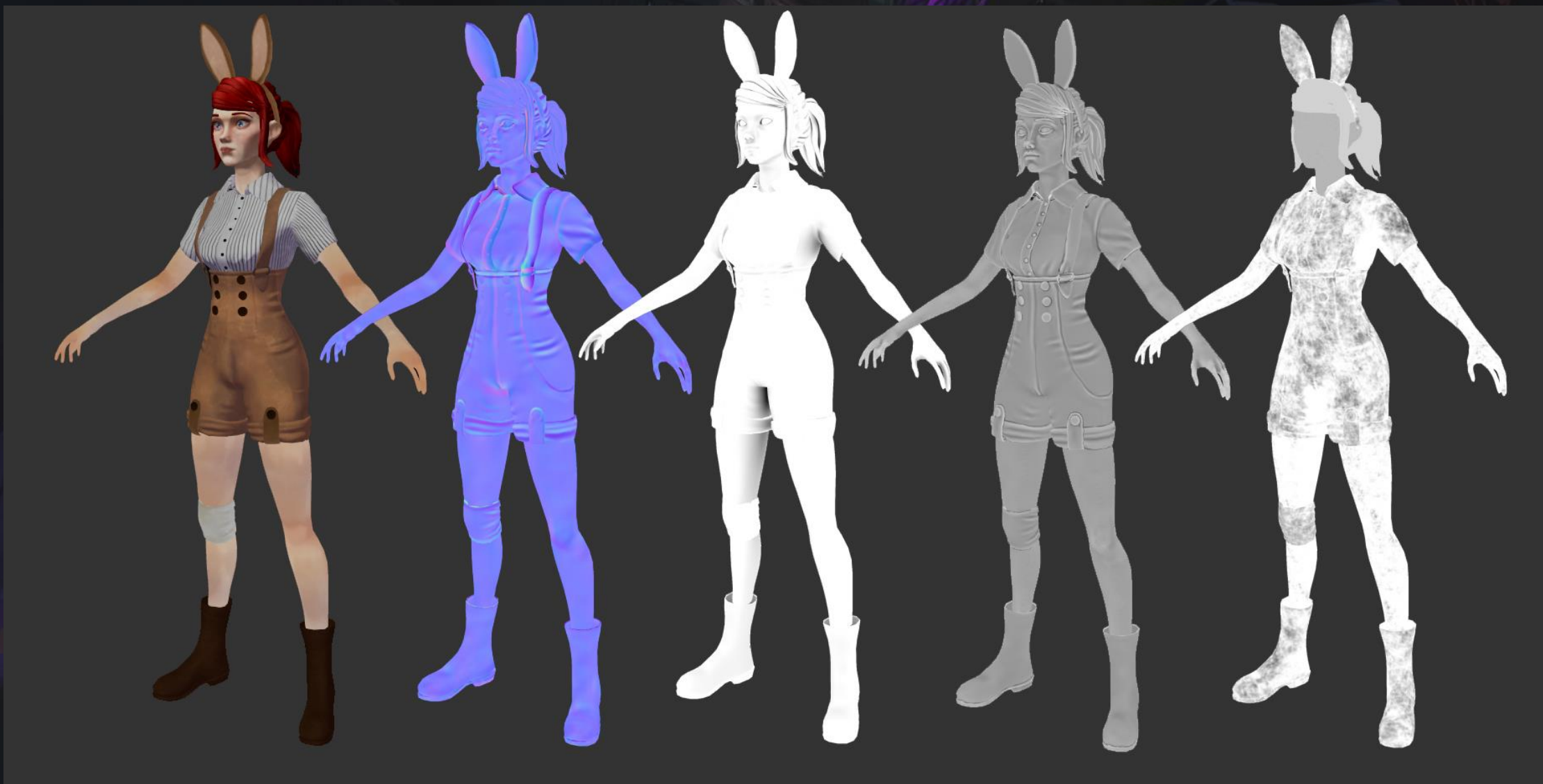
- Spent most of the time on the face as this is what people are drawn to first
- Used the Jynx example to create the eyes building up the colours
- Used the knife brush, building up red shades, shadows and highlights in the characters face
- Adding in the details of the lips with different layers
- Used the spray brush to add freckles



Texture Sheets



Development Pipeline



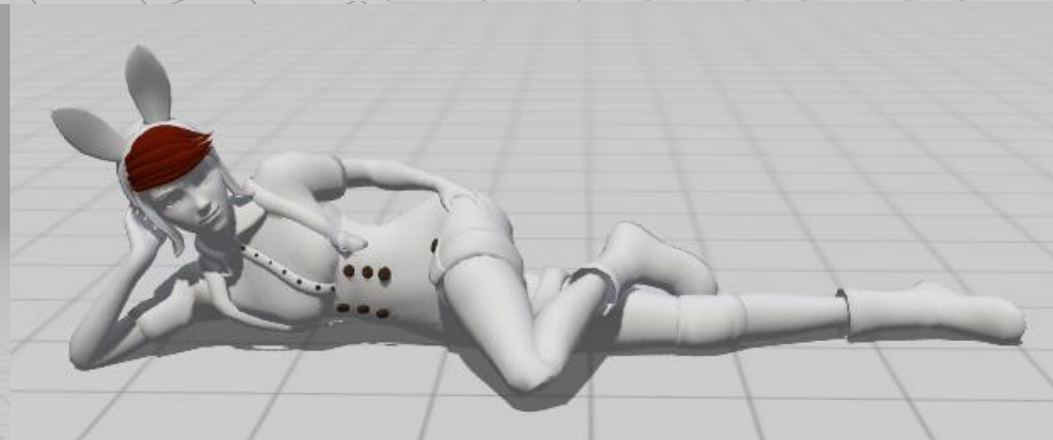
Development Pipeline

- Character should be happy go lucky
- Confident and sociable if they're a merchant
- Holding something, or with open gestures and body language
- Take references from Arcane and Borderlands



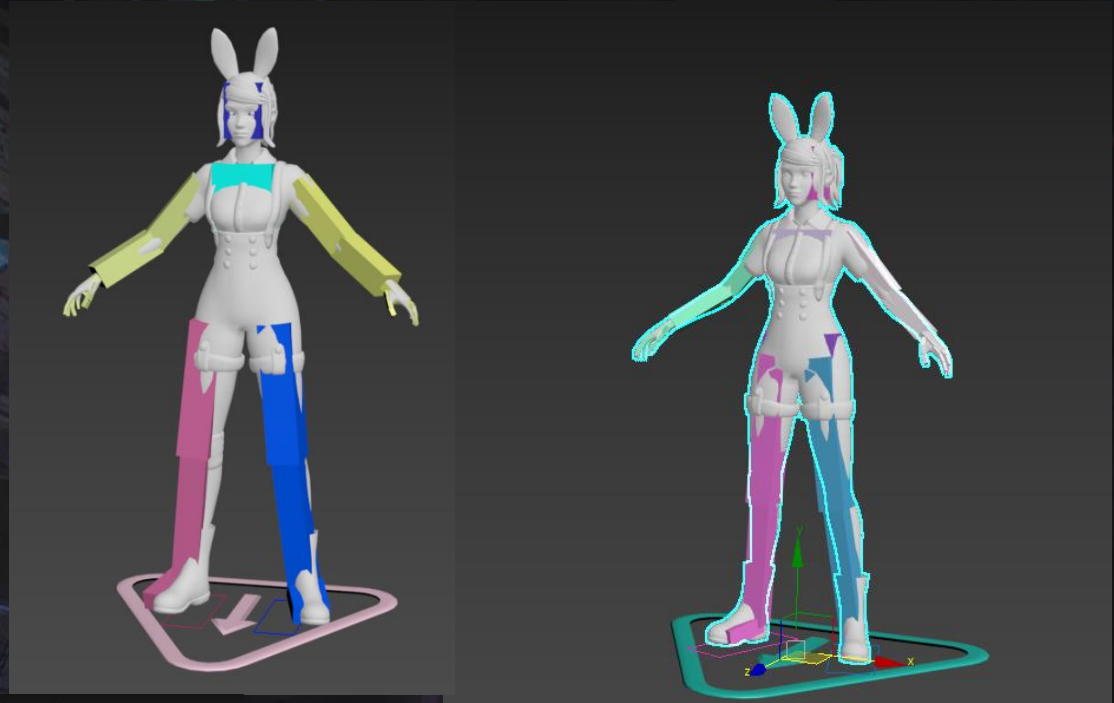
Development Pipeline

- Mixamo was used to test the model and see how easily it would rig.
- It was also used to see the different poses that could be created for the model



Development Pipeline

- The first attempt at rigging was with the base human skeleton in 3DS Max however there was issues where some of the model wasn't weighted properly
- To counteract this a brand new rig was made from scratch, and when this was voxel skinned it was pretty much perfect and could be moved around
- Silly poses were made to stretch around the model and see how it moves around and if anything needed the weight painting



Development Pipeline



Development Pipeline

- Mixamo poses were used and then cleaned up
- The face and eyes were moved around to add expression to the character in the different poses

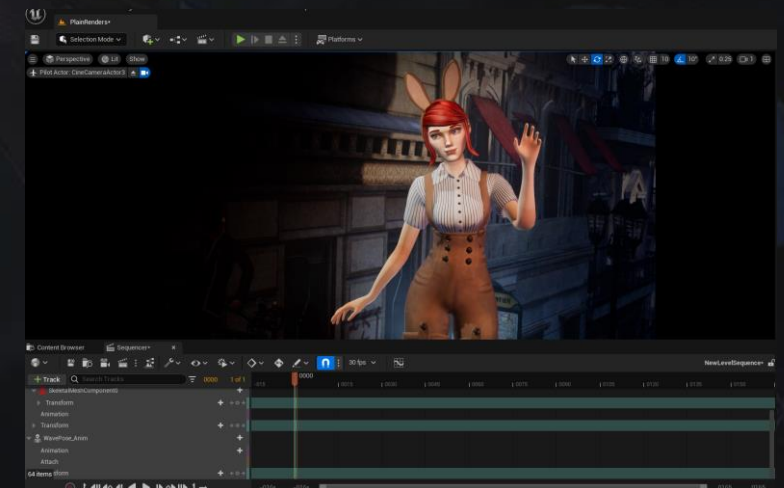
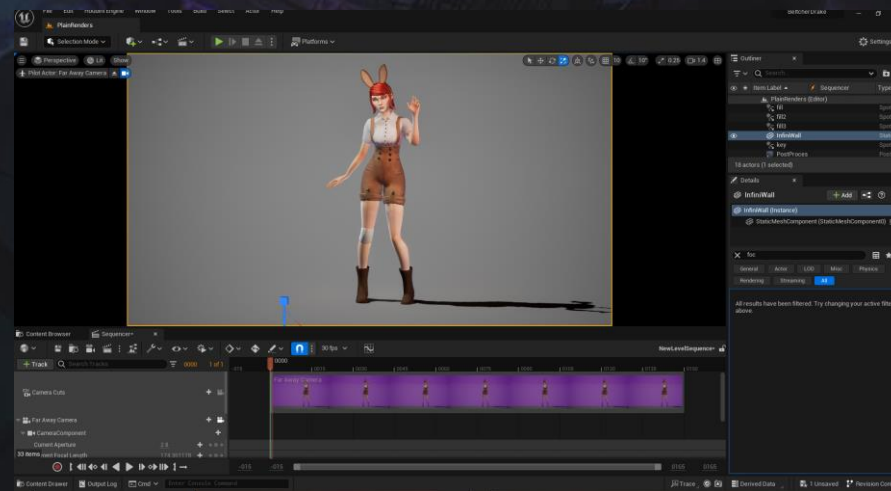


Development Pipeline

- The unreal scene was set up with an infinity wall
- Basic 3 point lighting was set up and then extra ones added in to complement the model
- Orange lights were added for in front and cool ones for behind
- A background was found online and placed on a plane behind
- To get the high res pictures the level sequencer was set up as other techniques didn't get as quality result



<https://wall.alphacoders.com/big.php?i=487886>



Beauty Renders



Beauty Renders



Beauty Renders



Beauty Renders



Beauty Renders



Beauty Renders



Beauty Renders



It's
X-Mas
Every
Day x

Beauty Renders



Beauty Renders



Beauty Renders



Beauty Renders

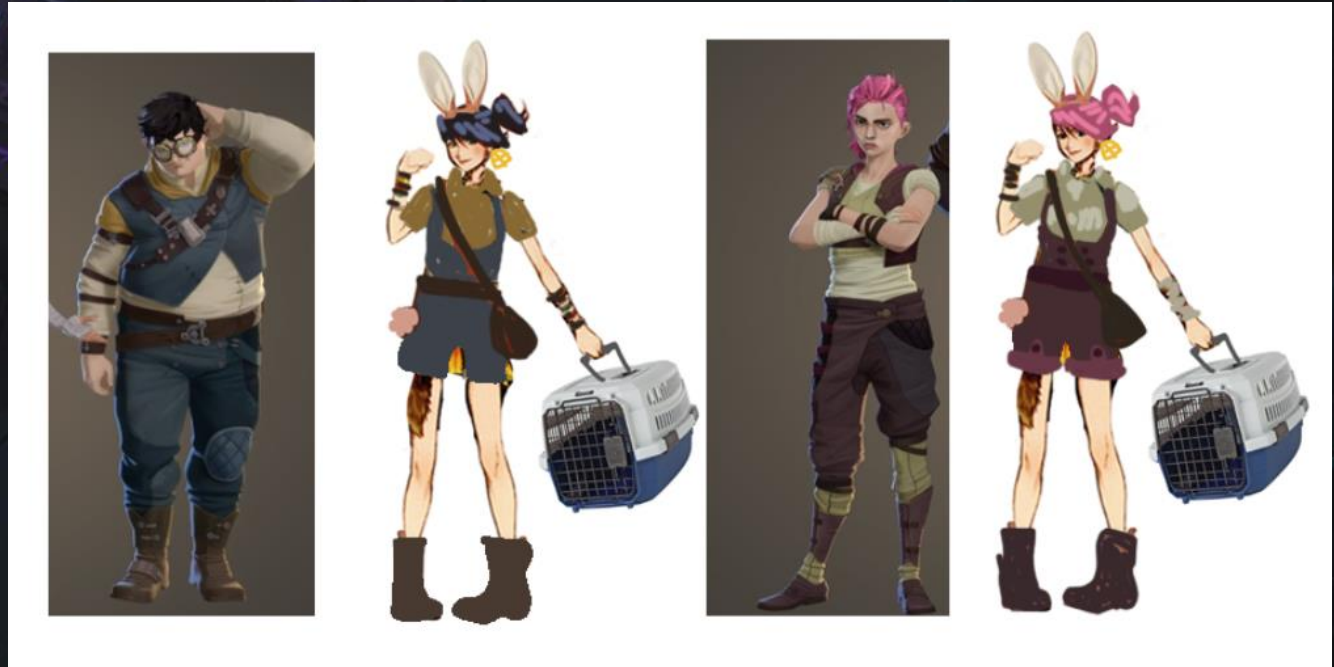
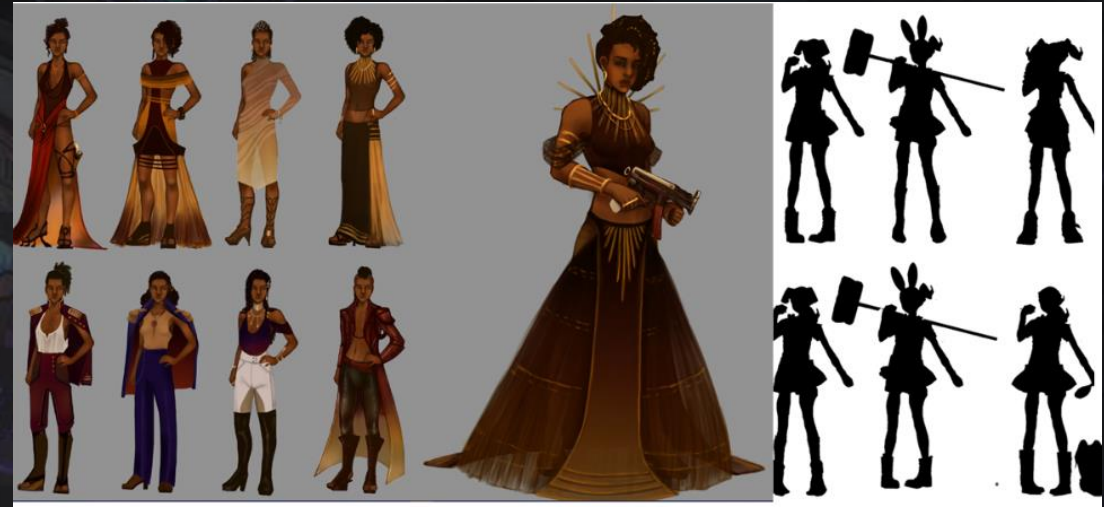


Beauty Renders



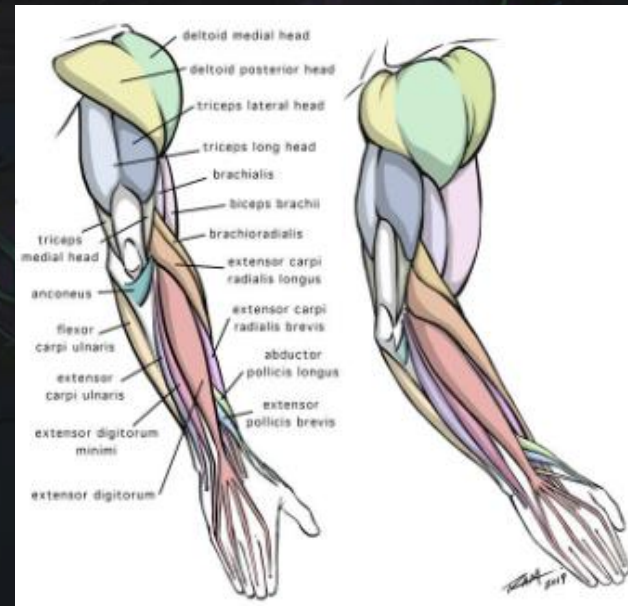
Critical Analysis

- The concepting of the project was very well thought out, with lots of considerations of what the character will be and look like. It would however be more beneficial to work from the silhouette first instead of photobashing or using it in combination to create something more interesting as a lot of the silhouettes look the same and very basic.
- While colour was explored it was also a basic hue change without looking at the values and how it affects the character. Even something as simple as sampling colours from current characters and applying them to the concept of the project would help bring it more inline with the Arcane style.



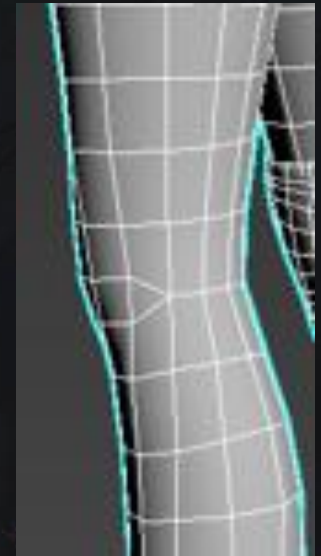
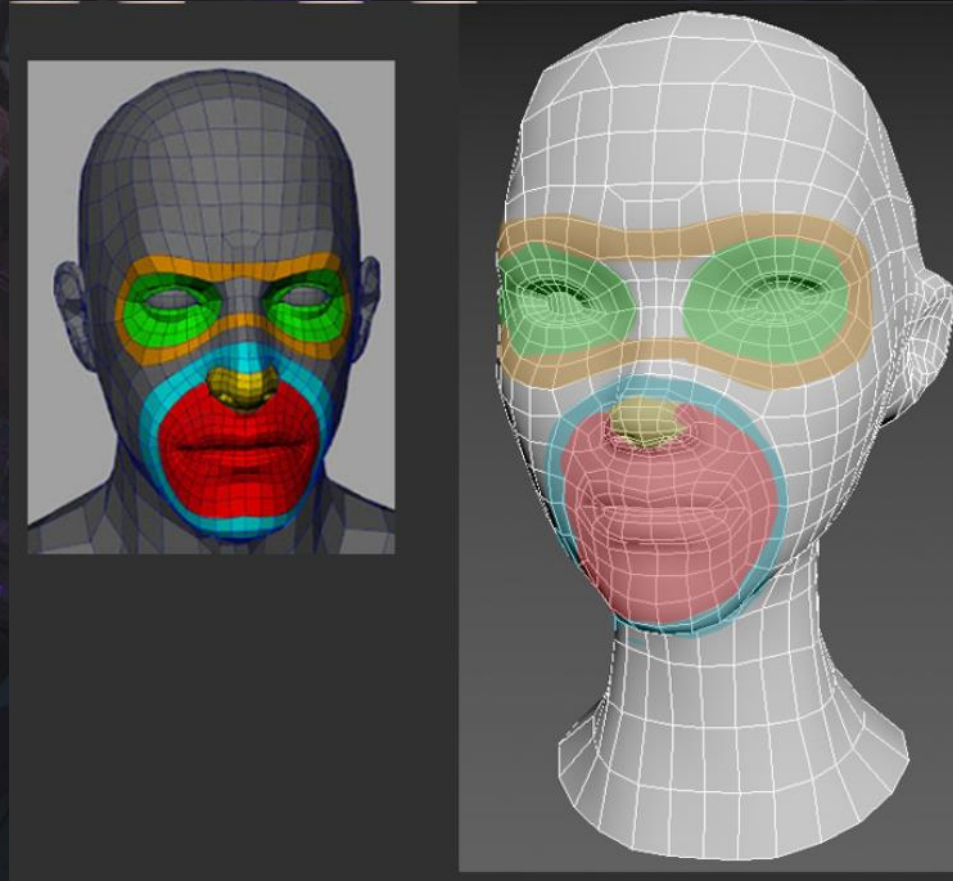
Critical Analysis

- The high poly while lacking some of the finer details shows off good secondary shapes.
- The reference for the clothes is excellent and more could have been taken from it such as deeper folds in the clothes and more defined seams to really add some depth.
- The buttons leave a lot to be desired and could have been smaller and slightly lower down on the body as seen in the reference. Arcane has a grungier look so adding some nicks with orb slash to the buttons and using some Hpolish would highly improve the accessories, including the ears.
- In terms of the concept a few things were missing such as the belt, pouch, earrings, and glove, which are all storytelling elements of the character which would vastly improve the character.
- The arm anatomy also could use more work as it is still basic shapes without any of the muscle forms and boney landmarks.



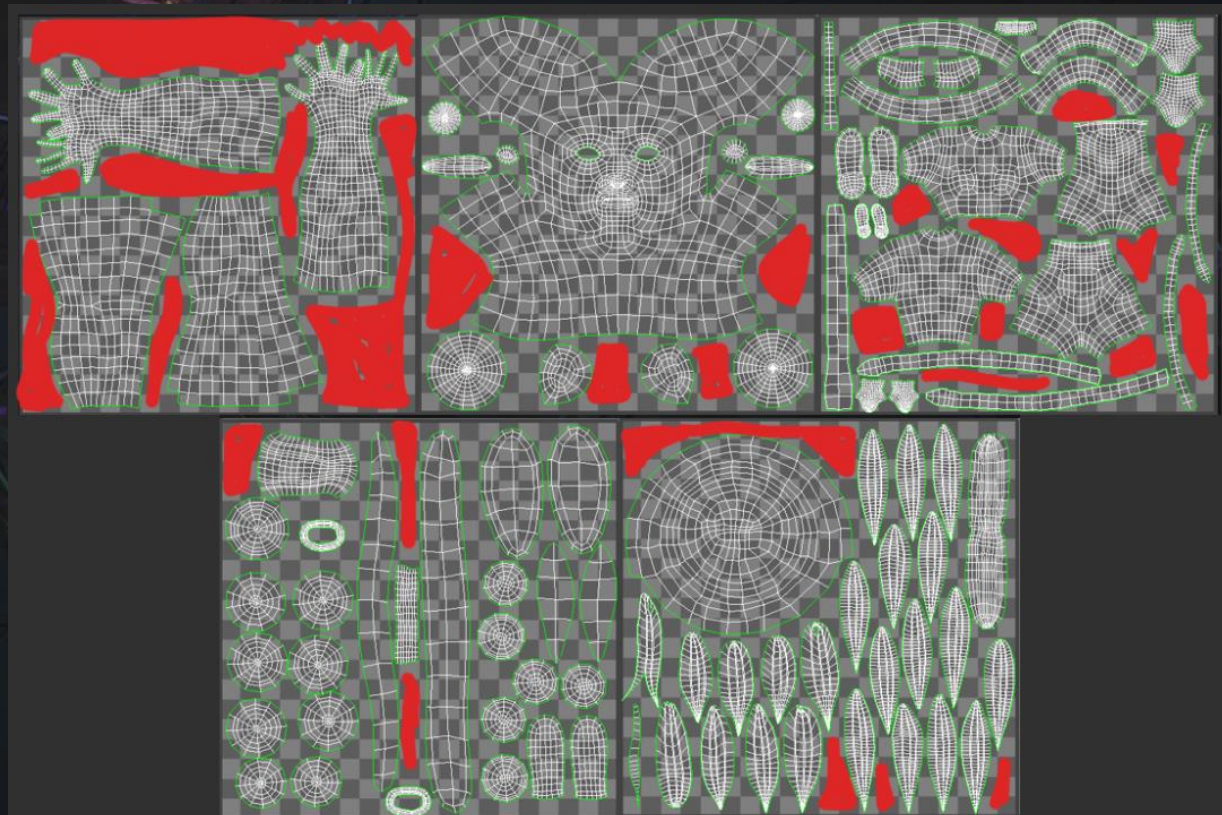
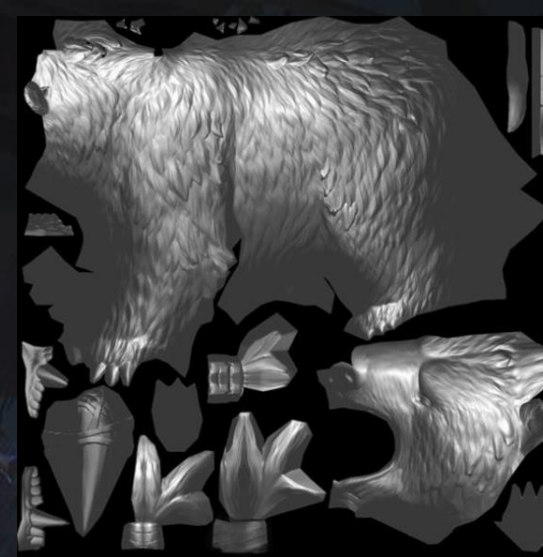
Critical Analysis

- Current tri count is 31,414 which is lower than the allocated 50-70k.
- While this means good use of retopology, it also means more could have been added to the model to enhance it.
- Adding in the extra pieces missing would have brought the count up to the expected amount, as well as adding in additional props such as a broom or net.
- The flow of the topology is nice with the denser areas being the head, hands and hair which is to be expected with considerations to the animation.
- Collapsing loops around the knees was done to help them bend, as well as the loops around the hip and breast areas. The face considers the way it would move around the eyes, nose, and mouth.
- There are a few areas that are denser than they should be as can be seen in the knee bandage, playsuit cuff straps and the buttons on the playsuit.



Critical Analysis

- The texture set allocation is well thought out with it consisting of hair, head, clothes, accessories, and skin.
- The skin could have been moved together into the accessories set however as there was a lot of unused space in the skin set.
- Some of the islands could be straightened out further with the pin tool to be more inline with industry standard practices and it would fill in the small gaps in the sheets.



Critical Analysis

- Face textures are very nice and pushed towards the more painterly style.
- Good use of exaggerated paint around shadows and highlights and as well around the eyes. To push this further adding white to the waterline would help the eyes stand out further as well as adding a gradient to the eyeliner on the top lid.
- Some of the planes could have been more exaggerated around the nose and eyes as can be seen on the Jynx reference.
- The clothes leave a lot to be desired in terms of texturing however the basic framework is there with colour variation, baked lighting and dirt wear.
- Looking at the Arcane references, a lot more variation is needed with the colours painted on to achieve the correct effect.
- There are also a lot of belts, metal attachments, and stitches used in the clothing designs used so an addition of this would have helped bring the character closer to the brief.



Critical Analysis

- Poses were considered from Arcane, Borderlands and Mixamo which allowed for a variety of ideas to take from.
- Rig worked well as the clothing was relatively skintight, so little work was needed on the weight painting.
- Poses are subtle and relaxed which well reflects the character, however there is slight clipping in some areas such as around the elbows and ears.
- This would be fixed by going back and adding in some more animation topology there and moving the weighting around.
- To improve this further adding something for the character to hold or an animal in the scene would add to the story telling and it often used in other media such as Borderlands.



Critical Analysis

- The render scene set up properly with an infinity wall a nice use of cool and warm colours.
- The background from Arcane was a nice edition to add some character to the scene. In some renders the background was quite obviously just an image sat on a plane however from some angles this worked perfectly, and the lighting mimicked a lamppost light in an alleyway.
- To improve the renders, care should be taken into how bright the lights are which effect the character, and more full-length shots of the body to show off the whole character instead of just the top half.
- Adding some effects in photoshop afterwards would also add a lot to the character as Arcane has a lot of dramatic shots.



References

- Omar, L. (2022) Creating arcane's VI in Maya, xgen & substance 3D painter, 80 Level. Available at: <https://80.lv/articles/creating-arcane-s-vi-in-maya-xgen-substance-3d-painter/> (Accessed: 24 May 2024).
- Sitompul, M. (2019) How to create your own hand-painted 3D characters, Discover. Available at: <https://discover.therookies.co/2019/07/21/how-to-create-your-own-hand-painted-3d-characters/> (Accessed: 24 May 2024).
- Yee, E. (2023) Painting arcane-style character using Blender, YouTube. Available at: <https://www.youtube.com/watch?v=2MdYtdODWcY> (Accessed: 24 May 2024).
- Mori, J. (2022) Sculpting Caitlyn Arcane in Blender 2.93 [timelapse] fan art 3D model, YouTube. Available at: <https://www.youtube.com/watch?v=QYgSSvWUgtI> (Accessed: 24 May 2024).
- japanime, G. (2021) Zbrush sculpting jinx | arcane (league of legends), YouTube. Available at: <https://www.youtube.com/watch?v=6oLeJGCMXf8> (Accessed: 24 May 2024).
- Pippin, R. (2021) Captain Alaina Helion - Dignitary Costume Design, Art Station. Available at: <https://www.artstation.com/artwork/q9rgXy> (Accessed: 2024).
- Parker, T. (2011) Face topology [breakdown guide], polycount. Available at: <https://polycount.com/discussion/80005> (Accessed: May 2024).
- Coders, A. (2024) Wallpaper Abyss - HD Wallpapers, background images, alphacoders. Available at: <https://wall.alphacoders.com/> (Accessed: May 2024).
- Marzullo, R. (2023) Arm anatomy diagram for artists by Robertmarzullo on DeviantArt, DeviantArt. Available at: <https://www.deviantart.com/robertmarzullo/art/Arm-Anatomy-Diagram-for-Artists-824011785> (Accessed: 24 May 2024).
- 4253, M. (2021) Arcane upscaled wallpapers, Google Drive. Available at: <https://drive.google.com/drive/folders/1TZrAMwTW2yqJpomGznbDTw5CFzWgTLwk> (Accessed: 24 May 2024).
- Yuan, N. (2023) Designing League of Legends' Katarina Arcane-style in Zbrush & Maya, 80 Level. Available at: <https://80.lv/articles/designing-league-of-legends-katarina-arcane-style-in-zbrush-maya/> (Accessed: 24 May 2024).