Grade 10!

Portfolio
Game project

Name: Mika Wishaupt

Student number: 2136967

Game: The Crazy Croc
(concept owner: Gini Langenhuijzen)

Team: Art

Main specialization: Environment

Sub-specialization(s):
Programming
Foliage - Props
- 2D art

mika w

Deadline:
23-1-2024 - 12:00

Introduction

Welcome to my portfolio for the game project!

My name is Mika Wishaupt, and I was part of the art team and the environment artist!

I study CMD (Communication & Multimedia Design) at the Avans University of Applied Sciences, where I learned many things about the Multimedia world but mostly got my personal focus on 3D modeling and coding.

I worked with Blender and Unity before for a smaller project alone and wanted to learn how to create a game with a big group of people and everyone having a task that would all work toward a certain goal.

The goal to make an awesome game!

The game was chosen during a voting between the people of the minor (“Create a High-end Video Game) at the HAN in Arnhem. The concept holder Gini had an idea for a game where we will work on during the 8-9 weeks.

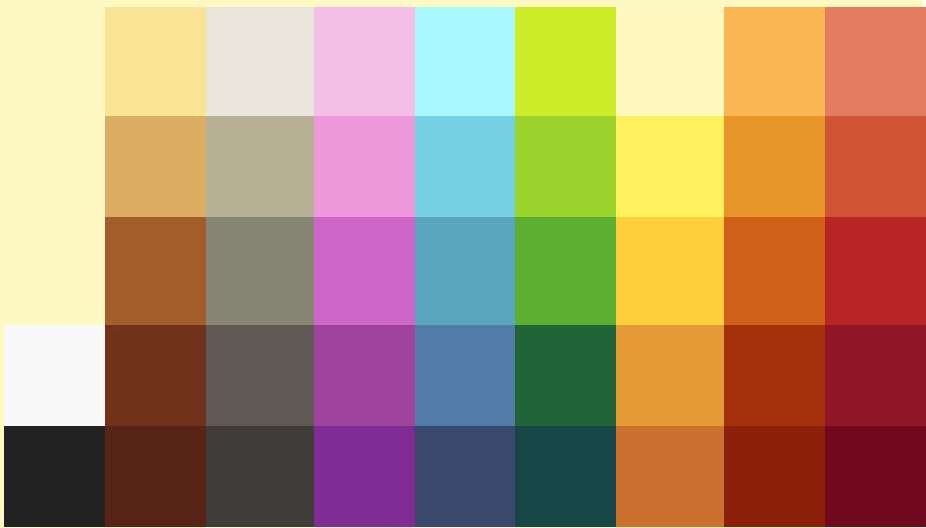
We will go from research and ideas to a mostly functional prototype.

The game and the art direction were something new for me.
Even the design of the portfolio is something I am not familiar with!

In my portfolio, you can find my work that went into the game, including research in my main specialization, followed by my process of the 4 sprints and what I mostly did during the time.

After that comes my sub-specializations, reflection, feedback, important learning moments, how someone could work further on my work (hypothetical), and the sources with further information.

Also the portfolio is designer using the Crazy Croc color palette!



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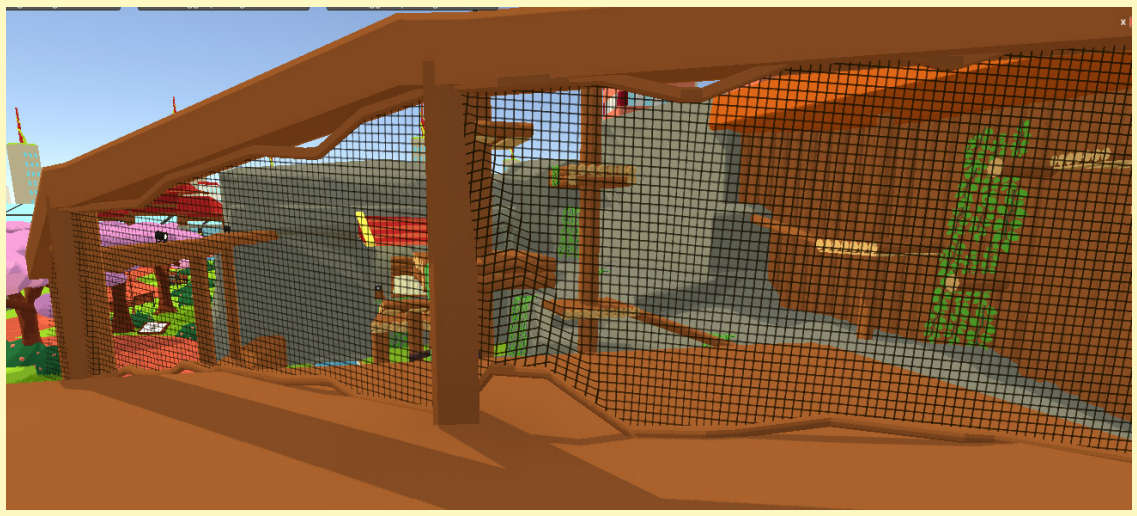
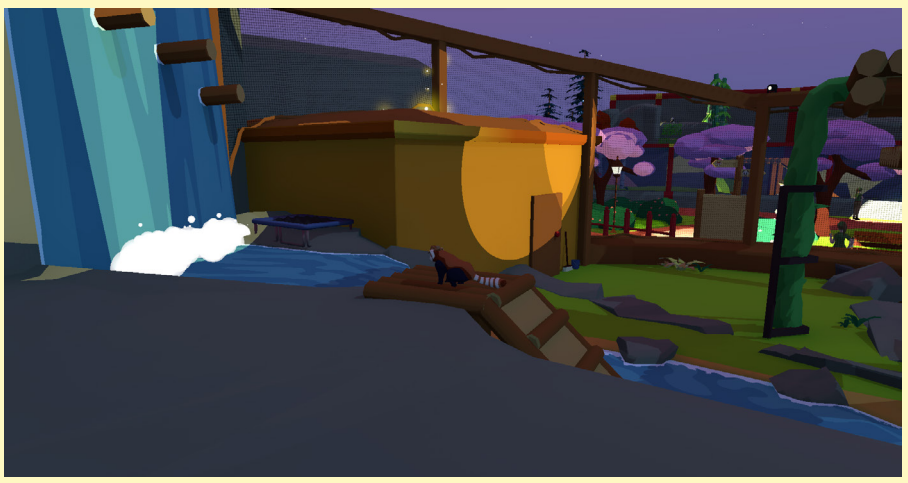
Showcase work in game

A showcase with work from me that made it into the game

Ali’s enclosure:



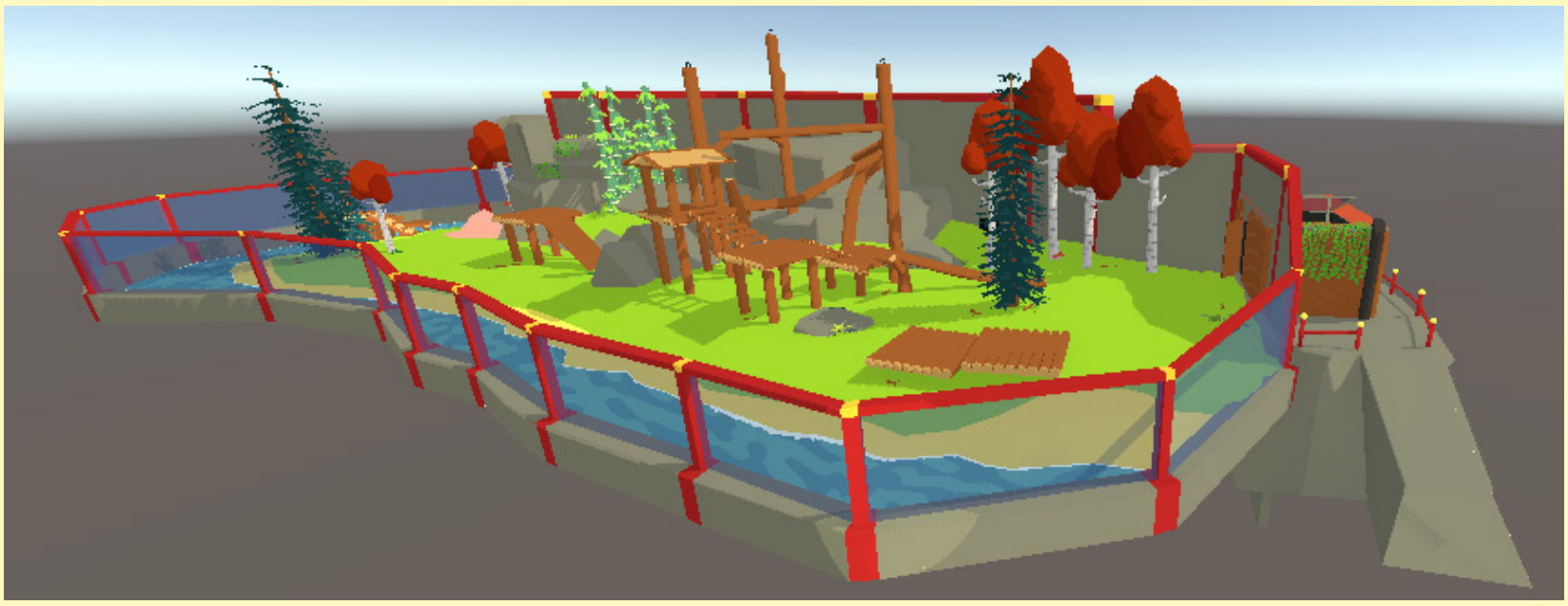


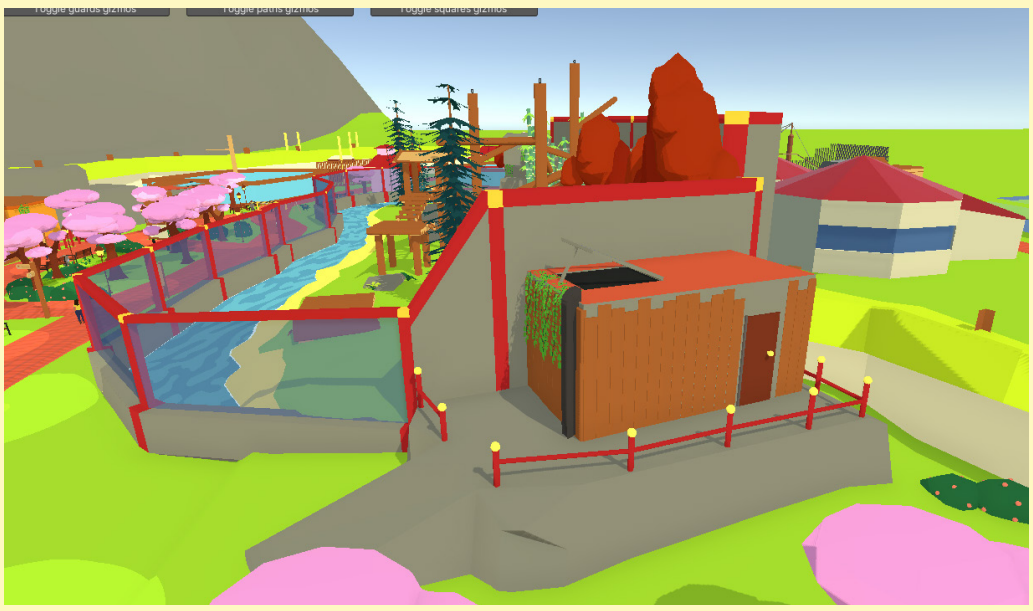
Ali’s enclosure is where I am most proud. I created the rocks, the sand with water (shader by integration member), the building, the net with escape, the cave and the overhang. With the added work of the props-, animation-, foliage artist and the integration member there was a beautiful first level that should catch the eyes of the player.

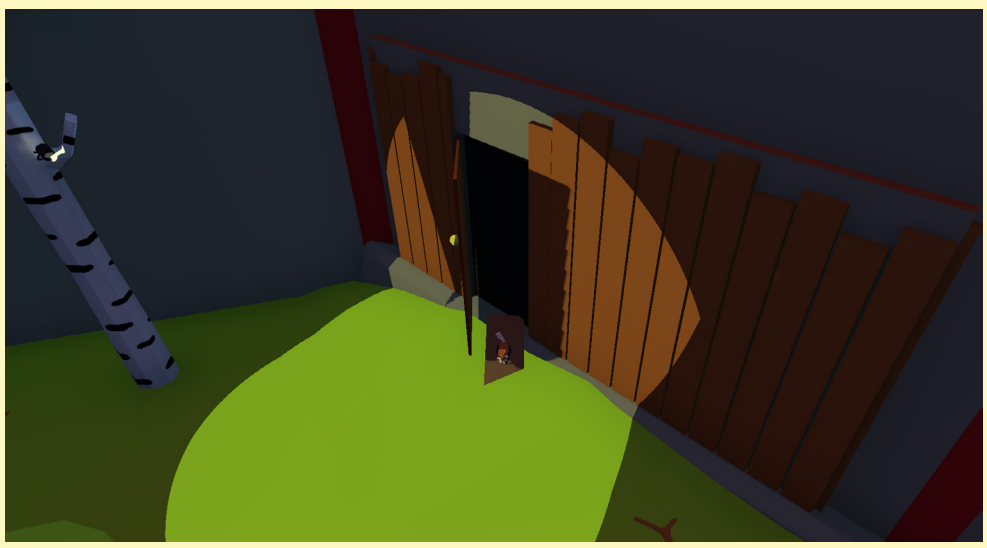
One of the hardest parts of building the enclosure was to fix the polygons and the faces, which is one of the skills that I have learned during the game project. Other than that, was it sometimes a challenge to make a whole enclosure with one color palette.

Showcase work in game

Panda enclosure:





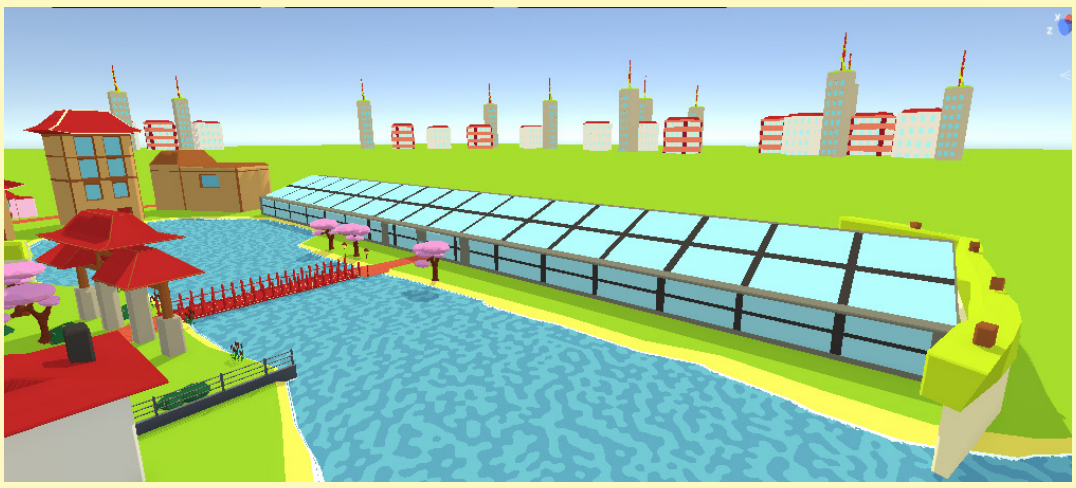


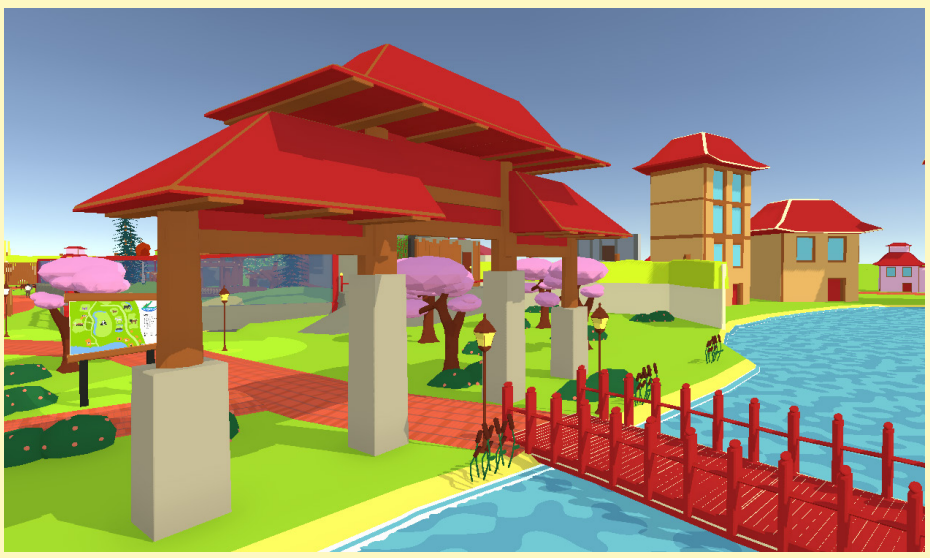
The panda enclosure is something where I can also look back on with pride. For the panda enclosure, while there were here and there some issues, in the end there was one functional level where I could make some core art and design choices, like how I wanted the entrance to the level. The player must understand climbing up and going through the window; otherwise, the player could wander aimlessly and get frustrated.

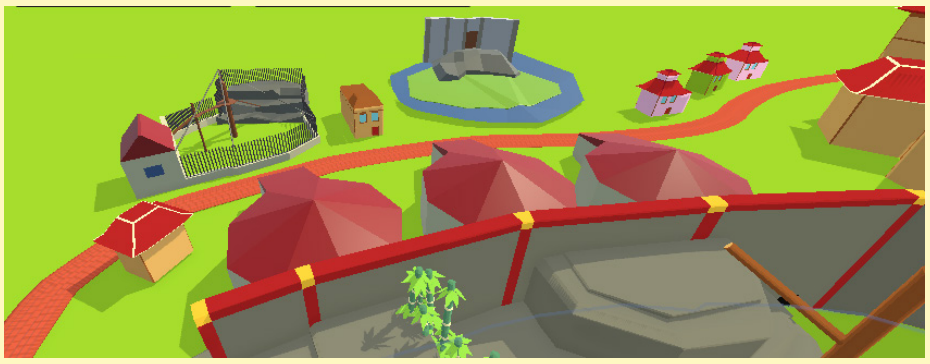
I also tried to create An Asian aesthetic with the usage of the red and yellow theme, which was previously used for other models.

Showcase work in game

Background buildings and background enclosures:







With the main two enclosures, there was still a lot of empty space in the world. Here I worked on fillers that made the world way more interesting, like, What world is behind the zoo? What animals are in the other enclosures?

I could imagine that if the game were expanded upon that, the enclosures could have new, unique animals and let you investigate further. This also gives me a potential opportunity to continue working on the game, with my last work to expand upon.

Showcase work in game

Path:

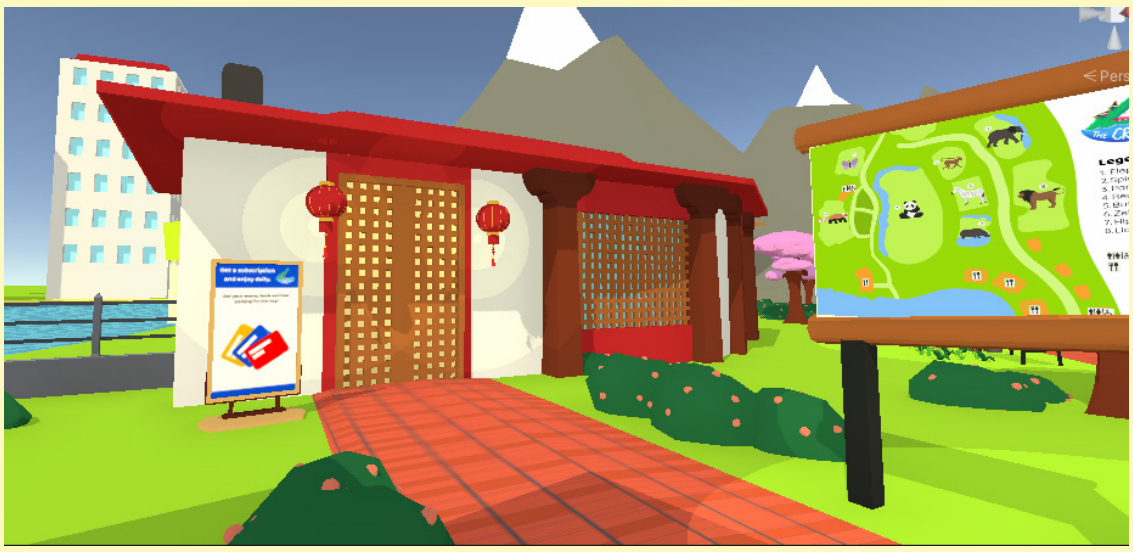
Through the zoo is a path visible that, in the game, NPC's like the guards used to navigate over.

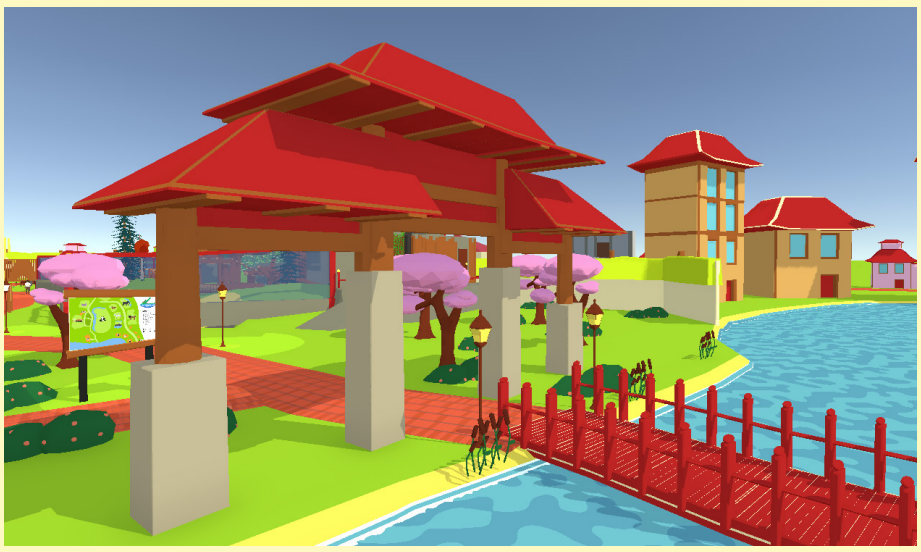
What I really like about the path is that it's one of the few models in the environment that don't use the color palette! And I got to make a unique texture for it!

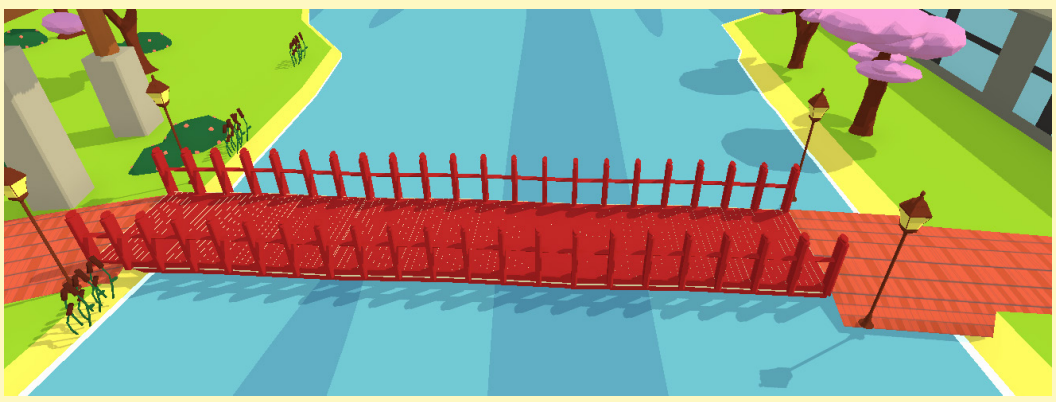
What I also like about this image is how much stuff I could add in the game, most notable the buildings and enclosures.

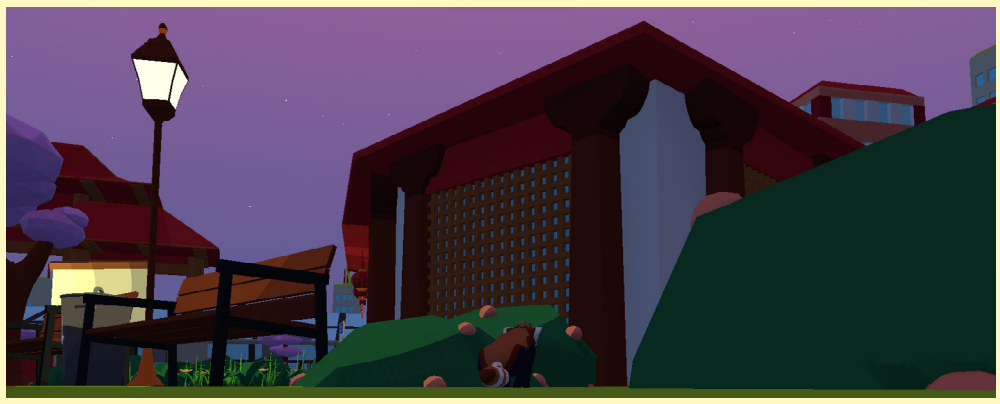
Showcase work in game

Other models environment:









With everything that is already in the world, there is still enough space to have some interesting objects in the game.

I worked on a big Asian gate that welcomes guests, an Asian-themed bridge, and, don’t forget, the restaurant.

The restaurant, in particular, is something I look back on proudly. I made sketches, did some varied research, and held votes and many feedback moments for it.

One of the questions during the design of the restaurant was: How attractive should it look like?

Obviously, you can make it beautiful by having a glowing banner with the name on it, but how do you make it look nice without attracting too much attention to it since the player should go to other places?

This is one of the instances where environment design is much more than just making things look nice.

You need to think about how the player would look at it.

One important skill that I learned from something like the Asian restaurant is how to communicate with others and hold your own opinion and the opinions of others in account to make something nice. An environment artist has a major role in creating the world, but this responsibility also needs to take the team into account in terms of what they want.

Showcase work in game

Work outside of main specialization:

Outside the environment work, which was mostly focused on the big things like buildings and enclosures.

I also had the chance to work on some other stuff that went into the game, like the big climbable plant and the lightning post.

The climbable plant looked simple to make in the beginning, but I still had many iterations to do and think about things like realism, which gave me the idea to have a support for the plant because without it, it looks like it would fall any minute. Because of its size, it also works as a
weenie, which attracts the player to it. With that, you are also working on gameplay and how
The player would either tackle certain issues or approach them.

About Environment

What does the Environemt artist do (based on sources)

When I started working on environment, I thought it would be pretty easy to explain, but it was later on harder than expected since that environment artists can vary per game and workflow.
For example, Riot Games talked about how environment art is 90% on the screen and where you work on. But doing single-handedly all the work single-handedly would be an almost impossible task for 8 weeks, especially since we have props- and foliage artists, of which Riot is an environment artist. The explanation of an environment artist based on studios like Riot can vary greatly from my tasks during the project.

If you would follow Wikipedia

An environment artist is a professional artist who works in the video game industry or film industry as a 3D modeler, specializing in outdoor and indoor locations for a game's setting. [1] They are responsible for creating the majority of the overall assets and visuals the player will encounter on the screen, modeling, texturing and placing assets, buildings, streets, foliage, furniture and all other elements into a scene using a method called set dressing. They also approximate collision so that the player isn't running through walls or other objects that block, optimize topology so that the level runs at a manageable frame rate, and help bring life to the game world. Environment art has become an increasingly desired field of work since the rise of console gaming. With more technology comes better environments. There is usually a direct correlation between time and the quality of environment art.1

A pretty good definition of an environment artist, but what do experts say?

For experts on environment artists I looked to IO interactive

An environment artist (IO Environment) is someone who does basically everything in one way, with exceptions like animation and characters. They are involved in creating the game world, mocking it up, creating final assets, preparing for outsourcing when necessary, buildings props, creating textures, and making materials. You are part of almost the whole game's creation. You can also pitch ideas and share thoughts on the game, which will have an effect on what comes in the game. Building static geometry means having control over colors, silhouettes, shapes, and what the environment is.

You will work a lot with level design. While they have a big saying about what a level should have, you can also have a saying in it. (At least how I interpret it.). 2

But how about people from a different and competing company like Riot Games?

Environment art is 90% of the things that you see on the screen. Without an environment, you would look at an empty world with just characters running around and some UI. It's the thing where the whole world takes place, and every piece needs to be made by an environment artist. The environment artist needs to prioritize what needs to be made in collaboration with other people, like game designers. After the game designers are done with blockouts, the environment artist can start working on the environment, keeping things in mind from the
concept artists and game designers.

The process of an environment artist starts with setting the theme and tone of the game, while game designers work on the blockout.3

One thing I noticed from the Riot Games video was that they also talked about how the environment artist makes everything, even trees, sky, and rocks, while some of these tasks can be for other artists like a props artist and a foliage artist.

Sources: page 70 - sources 1 to 3

About Environment

What did I do generally during the project for environment

Io Interactive's insights resonated strongly with my experiences throughout the game project, emphasizing the multifaceted role of crafting a comprehensive world. In the context of game development, my focus was primarily on researching and shaping the environment. This involved exploring various art styles that harmonized with the game's vision and ideas of game design and the art team. Once the art style was established, I delved into creating diverse objects, such as enclosures, buildings, and paths, which are based on my research and drawings.

The chosen art style of the art team used a color palette with limited colors, and over the game was a toon shader, which changes how models will look in the game. These elements could enhance the model or make it look bad. Collaboration with props and foliage artists was common, given their role in defining the environment, sometimes blurring the lines between distinct artistic disciplines. Riot Games showed how artists are taking the environment into account when making the whole environment.

My primary contribution revolved around the major compositions, particularly the enclosures where the majority of the game will take place. Making a balance between aesthetics and logical was very crucial. The environment had to be both visually pleasing and convey a clear understanding of the terrain type, while also, in some ways, going with the game design team's vision.

While the game design team handled map blockouts and some other tasks like parts of the terrain (example, the mountain), my responsibility was to infuse it with a distinct visual style, considering color schemes and shapes. Transforming a basic cube into a visually appealing rock required attention to detail, turning a simple blockout into an interesting place.

An environment specialist must also consider the player's experience, addressing issues of bug fixing to ensure a seamless gameplay experience. Attention to detail is important, as is balancing the significance of environmental elements to avoid unnecessary distractions for the player, like going into the wrong direction or losing track of the game's intention.

In the later stages of sprint 4, I witnessed how my artistic decisions influenced gameplay, such as the design of the panda enclosure entrance. This realization underscored the notion that, throughout the decision-making process, I also had, in some ways, tasks of gameplay, thinking about how the player would tackle something. The fence with a hole in it is one example of it. The player must find and understand going under it to escape Ali's enclosure.

Recognizing the crucial role of environment artists, I agree with Riot Games that they are core components in game development. Their absence would render a game without a world, similar to Riot's assertion that without them, a game might consist solely of blockouts of basic shapes, with props, foliage, and other elements introduced by fellow art team members.

The art team entrusted me with the critical responsibility of ensuring that all environmental elements, excluding props, foliage, and game design features like mountains, were functional and in the game. This gave me the task of creating the majority of the map artistically, while actively seeking and incorporating opinions and feedback from team members and other people.

In essence, the role of an environment artist extends beyond personal artistic expression; it involves crafting an immersive world collaboratively, where the team's cohesion contributes to an enjoyable and harmonious gaming experience.

Environment process (sprint 1)

About:

Sprint 1 is mostly about the research of the specialization (environment); it takes a broad view into different approaches to art styles and the effect of usage on different enclosures that are part of the core gameplay. In the research, I also made different iterations and drawings to experiment, seek possibilities, and share with the art team.

Reflection sprint 1:

- Because i didn't have the layout, working on the environment was pretty hard, but I could create some ideas and modular buildings.

- Starting with the project was pretty hard since everything still needed to be set up and what roles you would take on.
In addition, the role of environment artist wasn't always clear what to do since online the role had different approaches, and I needed to find a way to implement it in the game.

- I am happy with my extensive research during sprint 1, which helped me later on with giving shape to the world. Something like the enclosures needs a good style that gives off the feeling of the game. I found how the enclosure of Ali could feel warm and not like some prison.

- I am happy with the iterations that I have made for the environment.

The first work for my specialization started with researching different buildings, architecture and how real life and zoos design their environments, like enclosures. After that and sharing my findings with the team, I started sketching and making iterations about the environment, from types of ground texture to different buildings and purposes. This was an overlap with other specialties like foliage because if I wanted to research the environment, you need to take foliage into account so that they are combined well in the game, or else things can feel off.

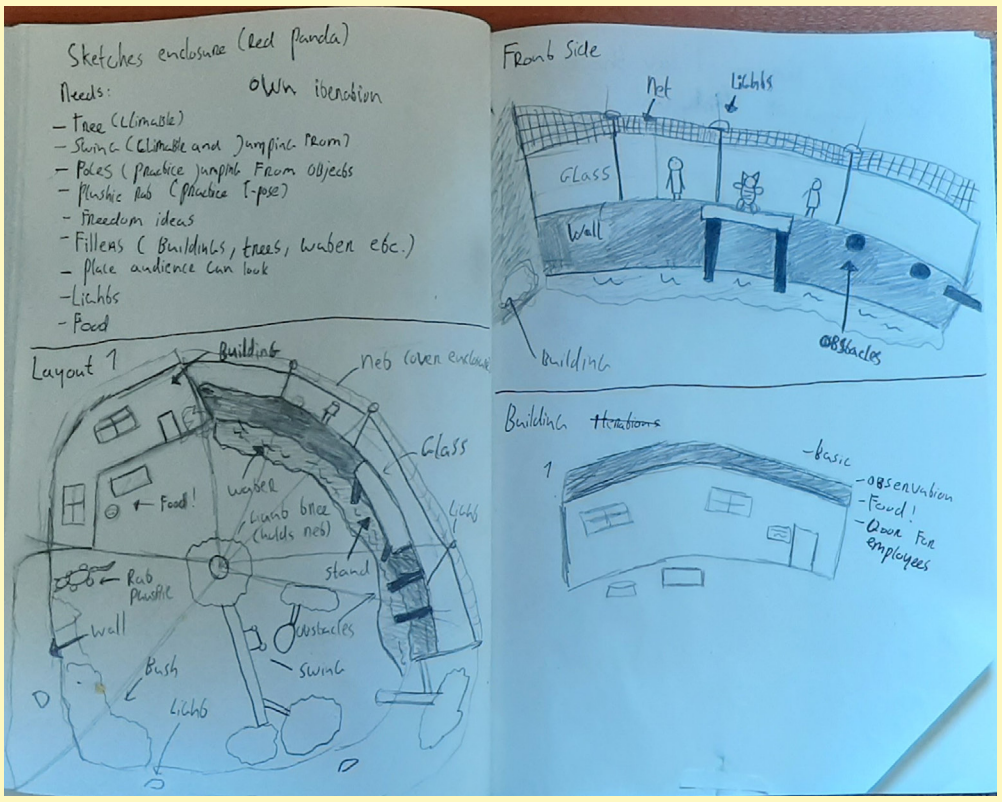
This broader research also looked at the environment in real life rather than just looking at video games.

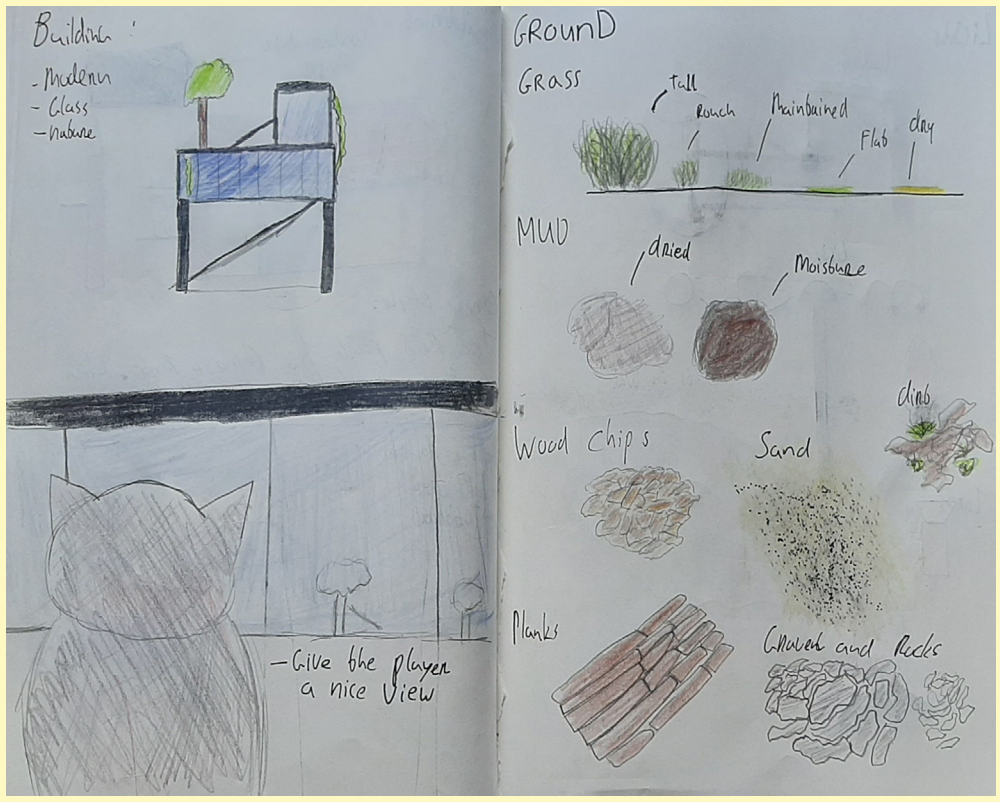
Creating moodboards about the buildings for the game. I looked at different styles and what the zoo could look like. This gives the art team, but also the concept holder, a broader perspective on the possibilities. The zoo could become a complete futuristic place with basic shapes and the usage of plants and glass windows, but it could also go for a classical build using thematics from the ancient Greeks and Romes.

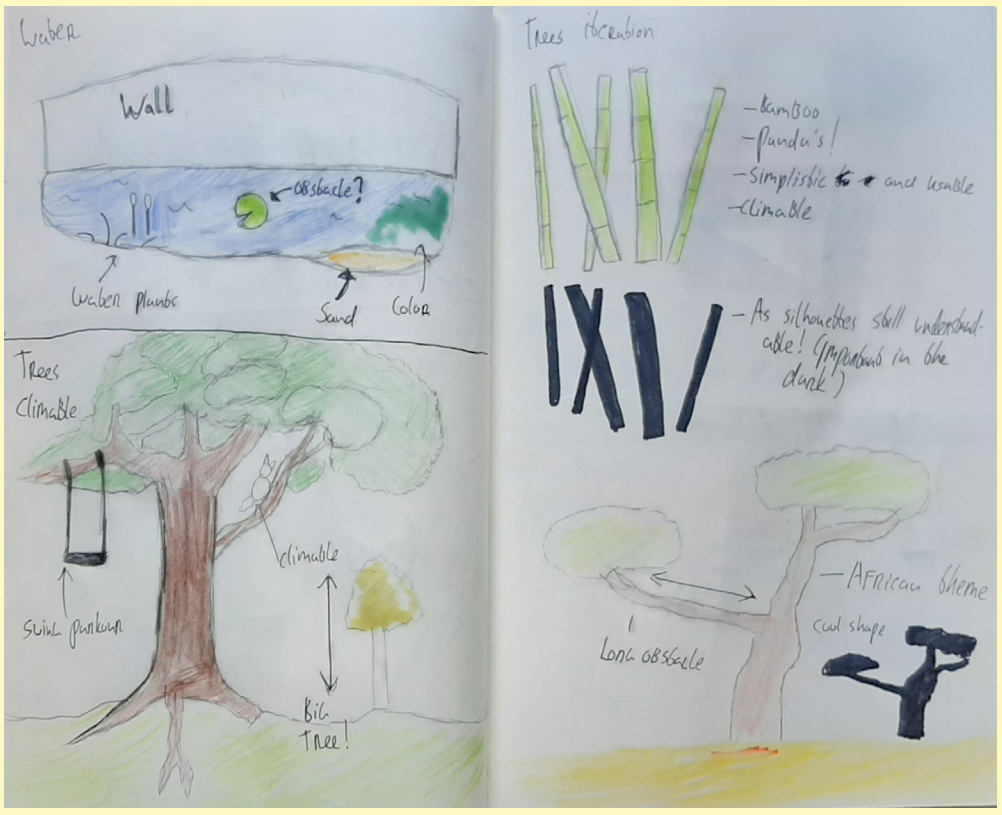
Outside of that, the research is also there to look for a way to create enclosures, specifically for Red pandas. What does the typical enclosure look like? What is in it? What could we add for gameplay? For gameplay, I found a tunnel in a zoo that could potentially be used to let Ali go through for transportation.

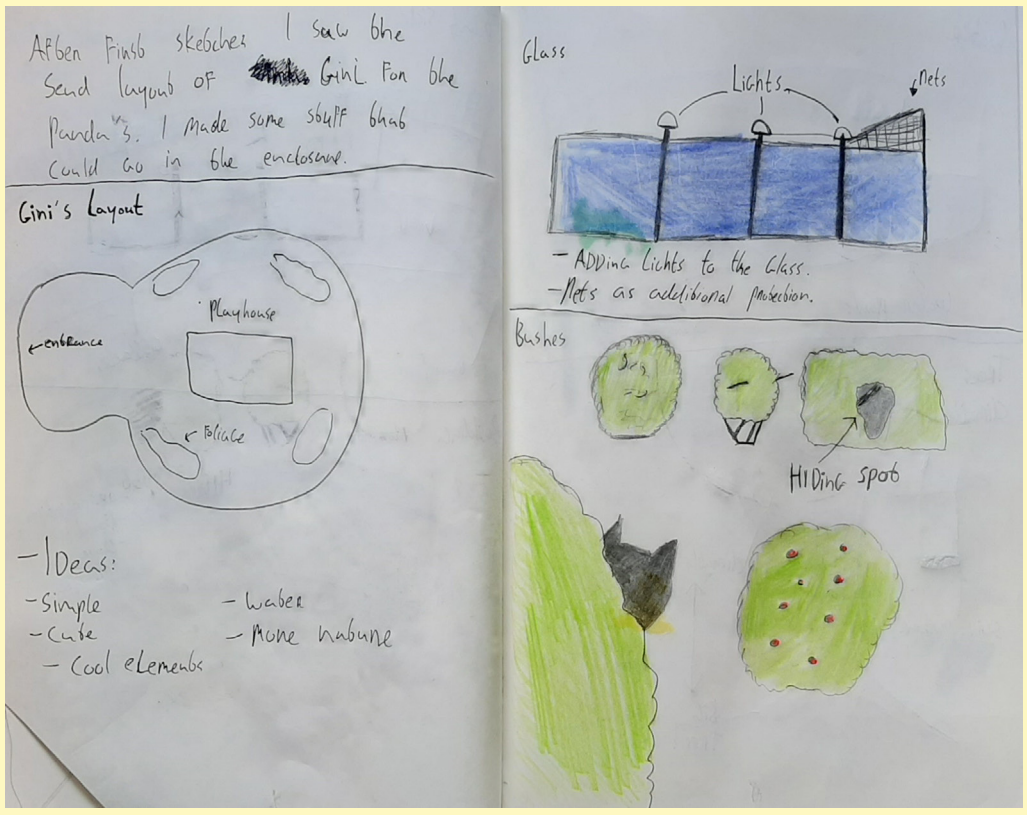
I did this by using both real-life examples and how things look in a game to take inspiration from both worlds and trying to combine them in an experimentation.

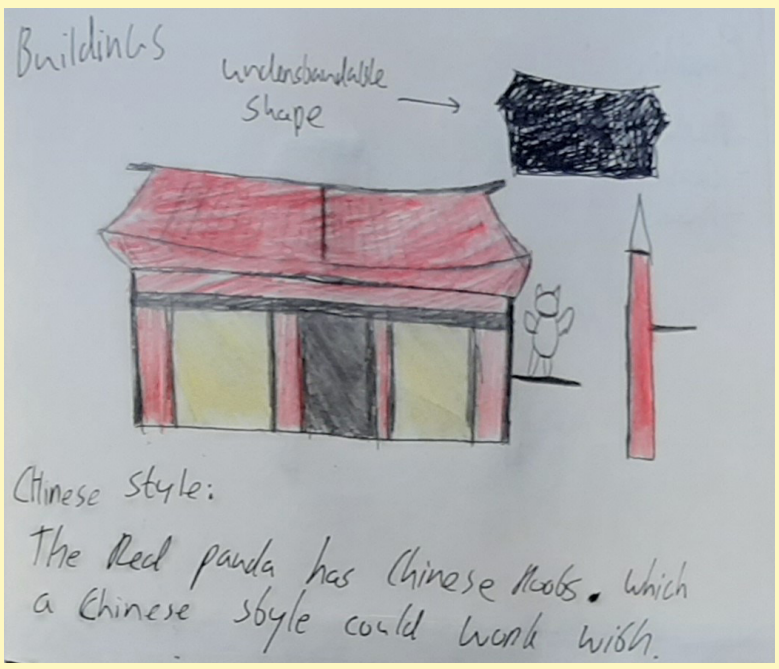
Sources Moodboard: page 70/71 - sources 4-19

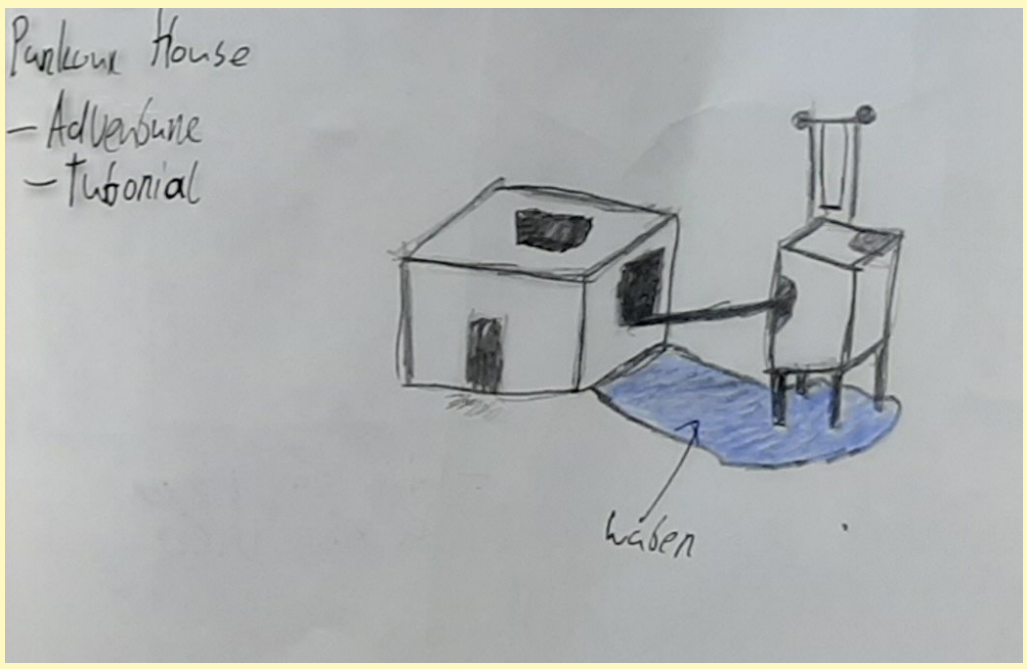












Creating sketches for the enclosures.

I made my own iteration, one with Gini's sketch of the giant panda, and converted it to the red panda. I looked back at my and other moodboards for inspiration and created a variation that is usable for inspiration for the art and design team.

With this research, I also made an exploration of foliage and how this could affect the environment; even something like trees could already make a huge difference. When I looked for trees in Ali's enclosure, I found that some trees could be used as natural bridges to climb and walk on. I found options for how we could create the zoo and also saw that a lot needed to be done. Not just modeling but also deep research into the style.

Having done extensive research on game maps and enclosures to find out how other games take environments in shape. Out of this research, I found multiple ways in which different games tackle layout, but also the overall feeling and, most important, how not to make a game look boring.

How do other games have their maps

How do games have enclosures

Environment layout/style:

Animal Crossing:

A sweet design that emits happiness

A big layout with a lot of things to explore

Rich environment from plants to the water

Planet zoo:

A realistic design with a lot of themes which depends on the type of animal.

You can create your own zoo but can see how others make their zoo with the animal types you can choose from.

The elephant got an African like theme.

Enclosure feel:

Slime Rancher:

The game has enclosures for the creatures and it is still nice looking compared to games where you feel like trapped and scared.

It is cute but for the red panda it might look questioning why you want to escape.

The prison HOLOGATE:

A different approach is the scary prison game.
You see the dark thematic but also the big metal bars that is made so someone is trapped and can't escape.

Using these type of bars and lighting can make the game scary but also shows that the red panda might want to escape and it will be a challenge.

How does Ali feel in the enclosure?

Does Ali feel bored?

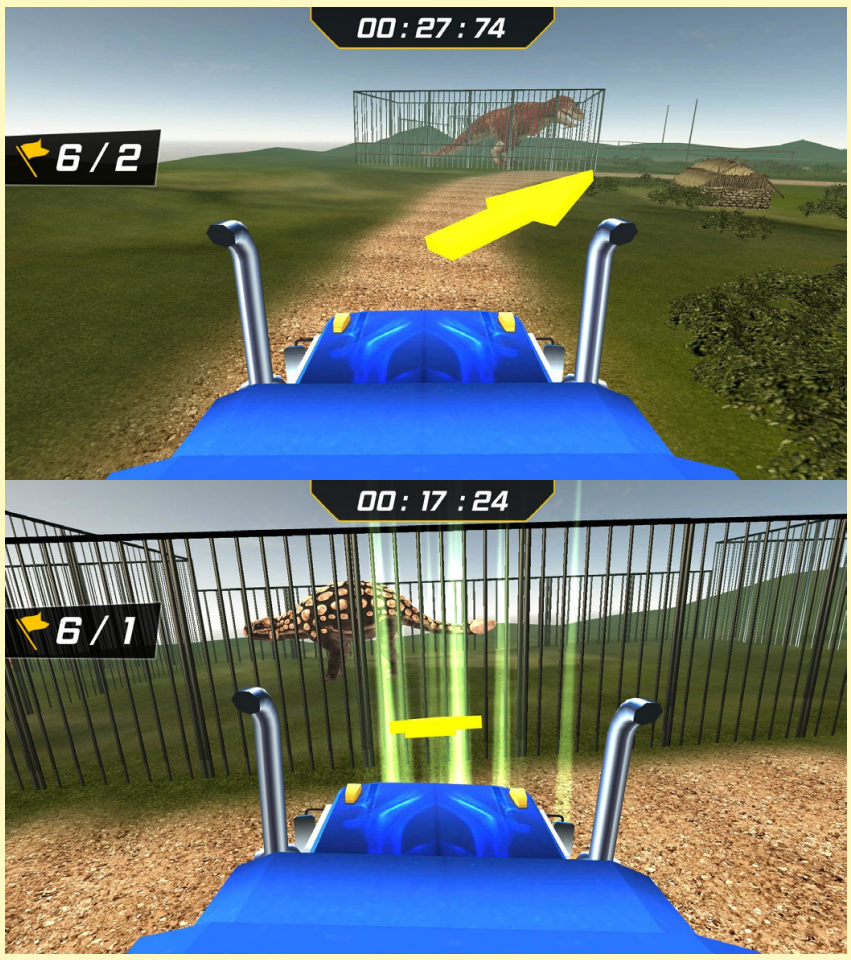
Environment layout/style and enclosure:

Zoo simulator:

The game uses your typical zoo enclosures but feel inviting.
The animals while stuck in the enclosure, they have a big space where they can be in.

The enclosure looks like fun and see no reason for an animal to want to escape unless oyu want to see the world or something

Dino zoo transport simulator:



This game aside from looking funny.
The map feels pretty bland and the animals just sit in small enclosure.

This might give the animals a reason to become angry and want to escape.

Out of this research I found multiple useful sources that showed how environments and enclosures in games take shape.

I found examples from games that try to shape a realistic style and experience like with Planet Zoo and Zoo simulator. They show examples of environments and enclosures that take place in a some world that tries to mimic our reality. They show realism from using realistic textures, to logic like having strong enclosures with the animals kept safe in special made enclosure and having humans on a nice observation place but also safe from potential harm.

On the other hand you have games like Animal Crossing and Slime Rancher that are more about cuteness. One interesting finding in Slime Rancher is how the slimes are put in a small enclosure that normally look awful but with the artstyle and the style and emotion from the slimes, it comes more over as cute and happy then abuse and sadness.

Last you got games like The Prison Hologate and Dino Zoo transport simulator. One goes for an threatening environment that is depicted with darkness and a trashed place. This showed me the importance of lighting in a game, the cute games use bright colors and nice lightning while a game like The Prison Hologate is all about darkness and making the player feel threatened.
Also when you compare Dino zooo transport simulator and Slime Rancher, they both use the same like small enclorues but Slime Rancher uses it good with the cuteness and the animals that look happy inside. Dino Zoo transport simulator has a hollow feeling with only a made terrain that is painted and a really basic metal gate. It comes more over as abuse and a temporary place for the dino's.

The importante of this research is to show how environment and also enclosures can change the feeling and depiction of a game. If a game like the Crazy Croc has to be cute and happy, we could use bright colors and a spacious enclosure to narrate this feeling in a way during the gameplay.

Sources Research maps: page 72 - sources 20-28

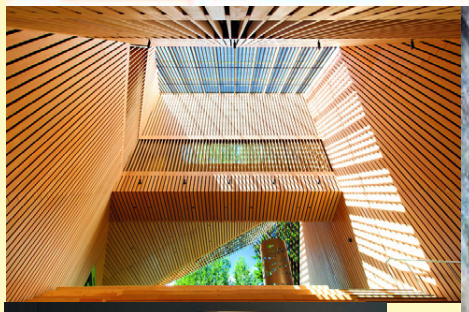
Creating Model packs with different inspiration from materials to a theme.
The model packs can be used as inspiration to create the maps but also to set a complete theme for the game.

Inspiration model pack #1 Wood

Inspiration model pack:
-Wooden stuff

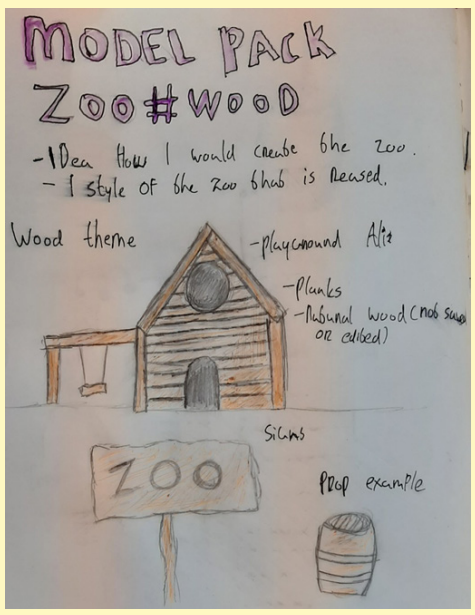


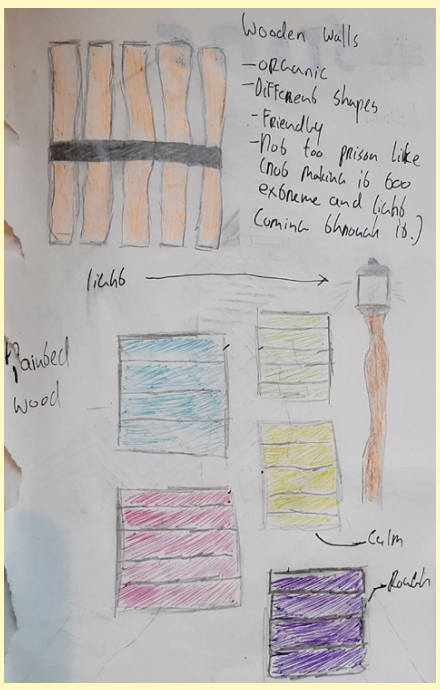




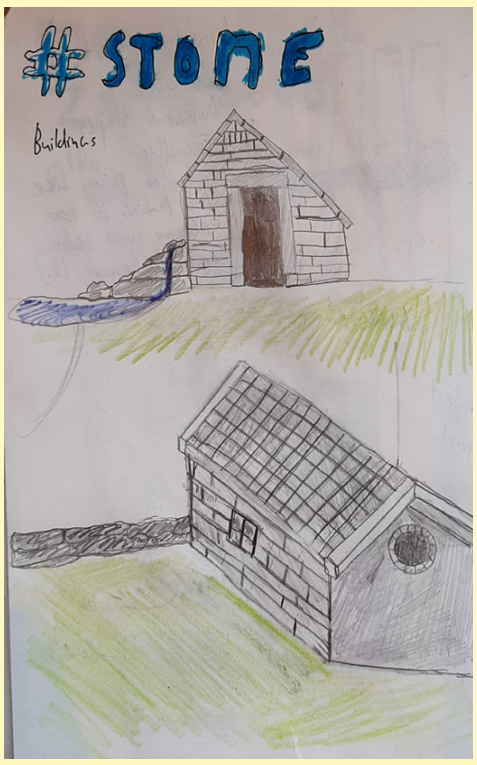


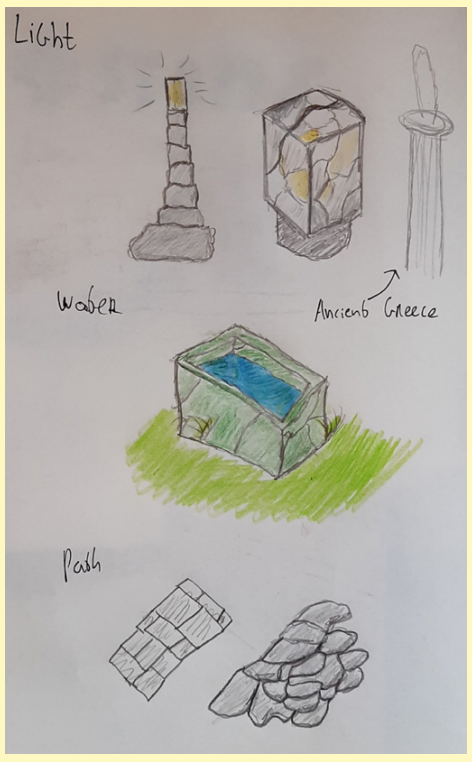
Inspiration model pack #1 Wood (Sketches)





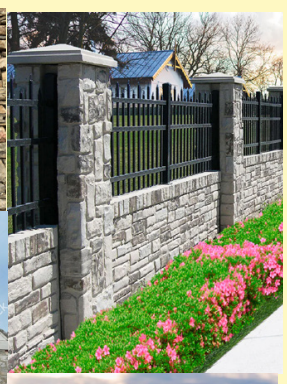
Inspiration model pack #1 Stone (Sketches)

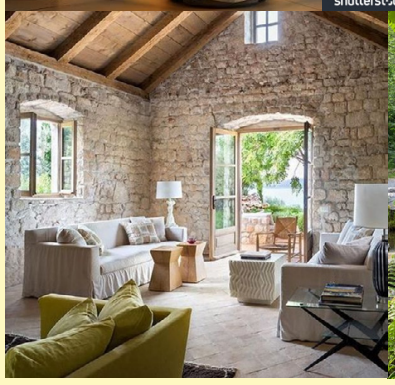
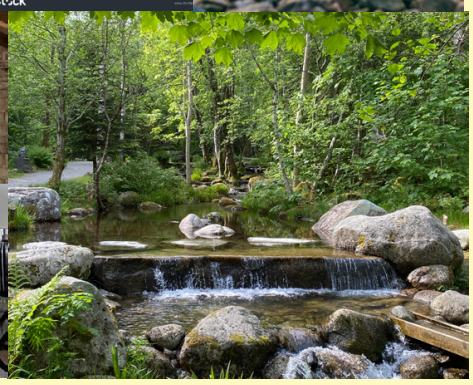




Inspiration model pack #2 Stone

Inspiration model pack:
-Solid
-Medieval
-Prehistoric

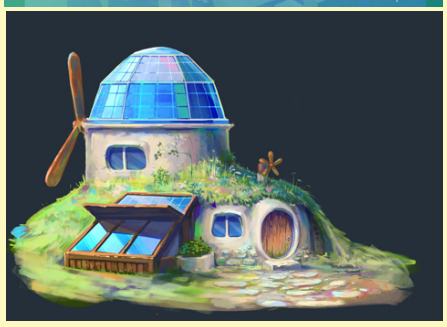



Inspiration model pack #3 Solarpunk (Sketches)

Inspiration model pack #3 Solarpunk

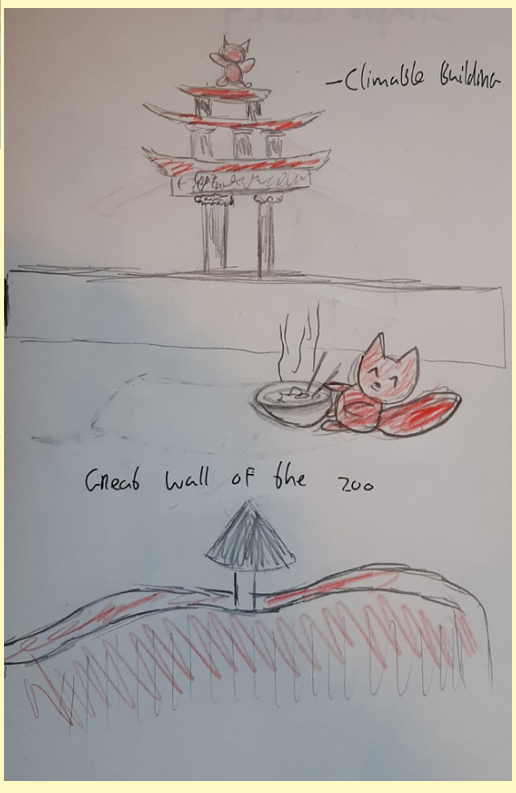
Inspiration model pack:
-Modern
-Nature (Green)
-positive
-Solar and renewable energy
- Zoo of the future!



Inspiration model pack #4 China

Inspiration model pack:
- Red panda connected
- Unique shapes
- Color usage

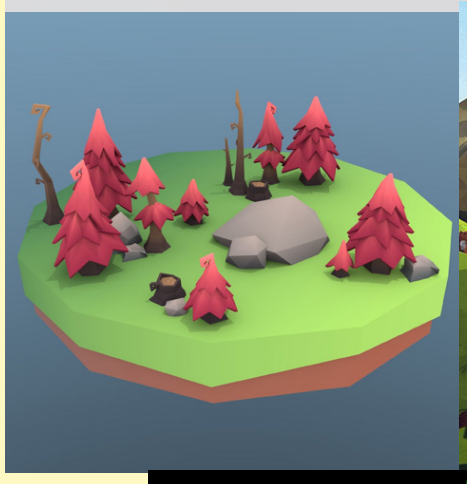
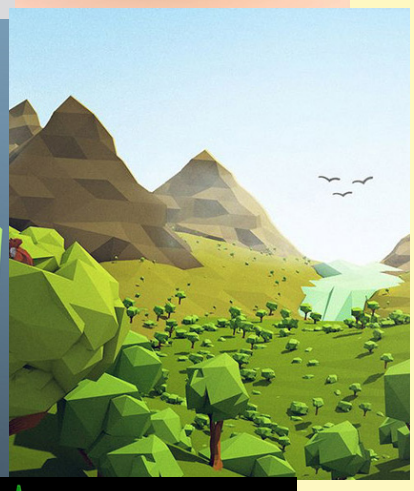
Inspiration model pack #4 China (Sketches)



Inspiration model pack #5 Simple cozy

Inspiration model pack:
- Calm style
- Low Poly
- Simple texture usage




Inspiration model pack #5 Simple cozy (Sketches)

With the research, I found different styles that all had potential in some ways.
In the game environment, simple cozy and Chinese/Asian are overall the most dominant and one of the core themes.
Also, the environment uses many elements of wood, stone and solarpunk which come from buildings that use wood and stone supports to the enclosures using rocks as one of the main core aspects.

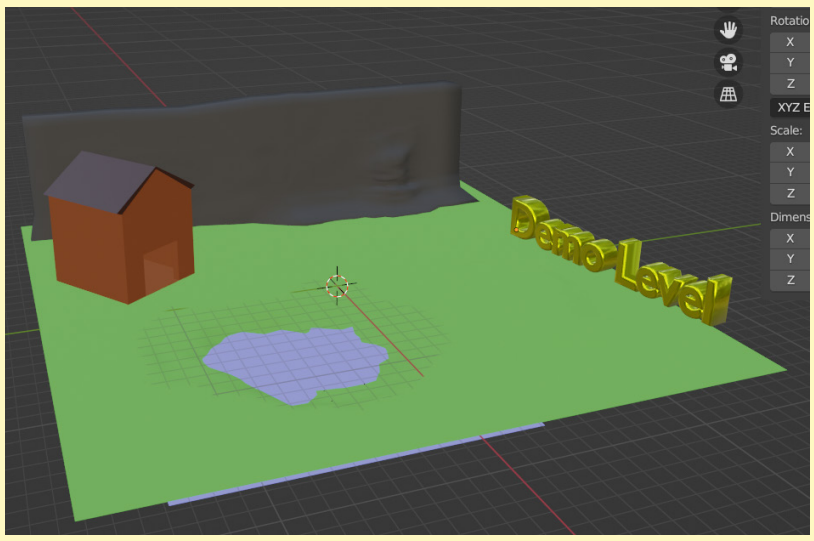
Simple cozy became low poly. In this still, we used simple shapes and had almost everything on one color palette.
This helped us to have a certain hierarchy in the world, with everything being in a similar color style.

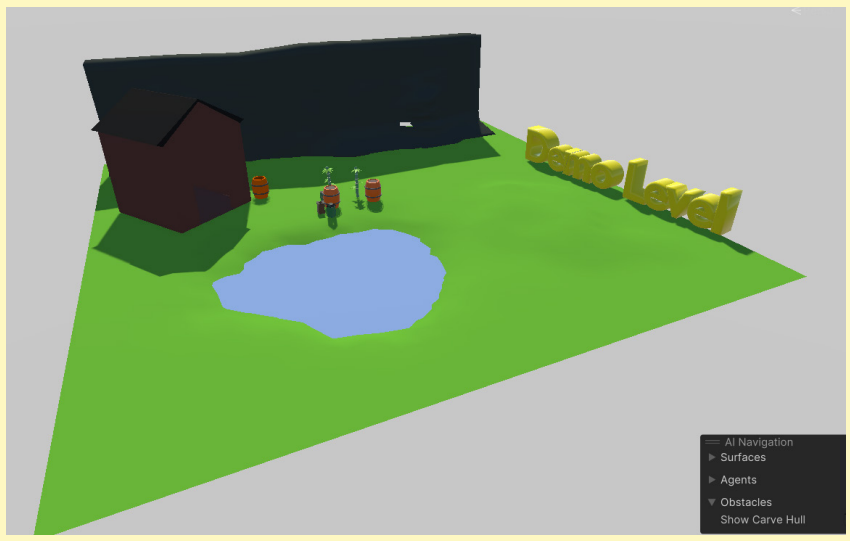
The Chinese/Asian theme is overall dominant in the game, since it became one of the core art choices. With the red panda and pandas being important to the game and both having Asian hesitance, the choice of having an Asian theme became more relevant and logical.

Elements of wood, rock and solarpunk came together as a blend of Asian and low poly themes.
You can think about the rock-like materials in the enclosures that make the strong foundation,
the wooden support that is in buildings and the green from solarpunk although not specific solarpunk because it could also fall under a nature art style.

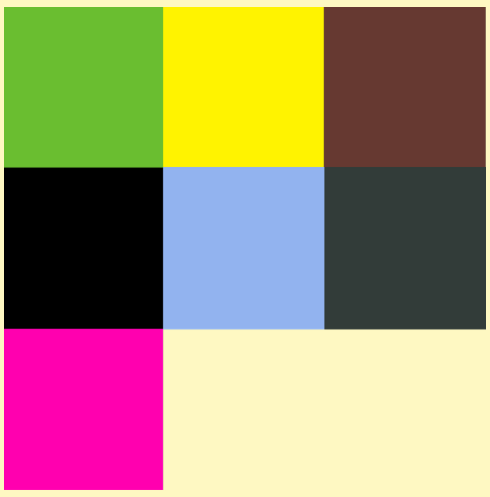
Sources inspiration pack: page 73/74 - sources 29-54

This week I'm working on a test demo level to find out shaders and design.
We used it briefly so that the integration member could test out shaders and everyone could drop their models on it.





Making basic shapes to test things on. The wall and ground have higher details to test out how high poly looks.
The building is low poly to also test the other side of the spectrum.
The letters have this metallic look to test different materials, like metallic.



Creating a texture for all the materials.
This works easier to have all materials on one texture.
The downside is altering the uv map and the options between colors.

Later the team would create one color palette to work on.

We did some research for our art direction and found a good example, which we used.

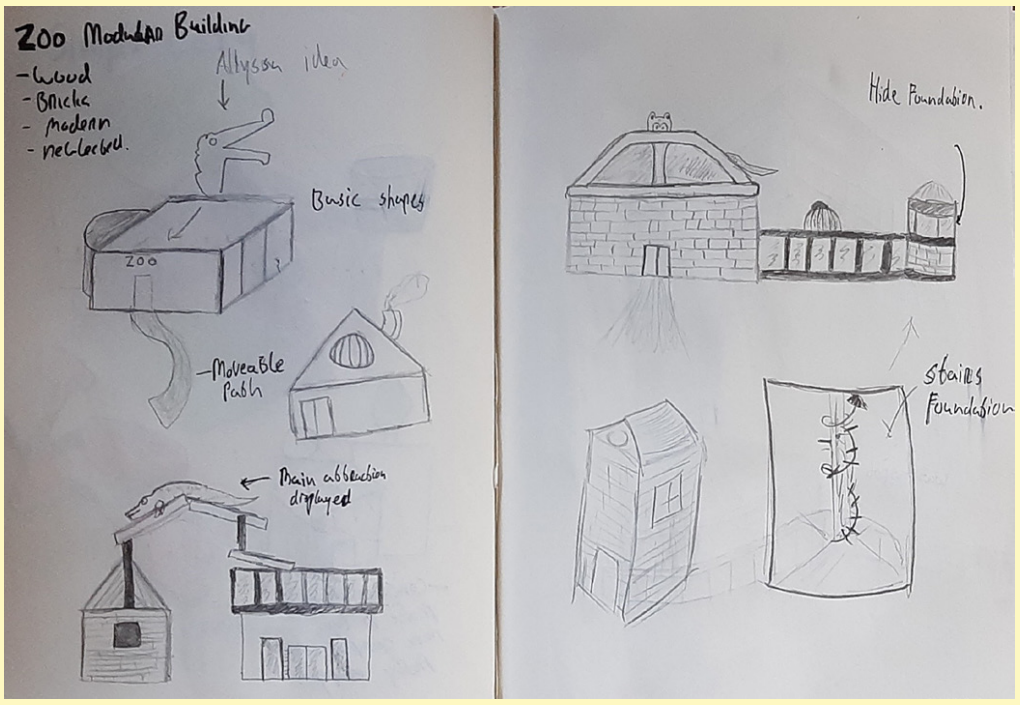
The foundings were shared with the team and showed how, with low poly, there are many options to model and work on it.
It also showed how, with a basic color palette, there are many options. In my model pack research earlier, I also had low poly but was pretty crude and basic shapes, this takes further in details while still being part of the low poly art style.

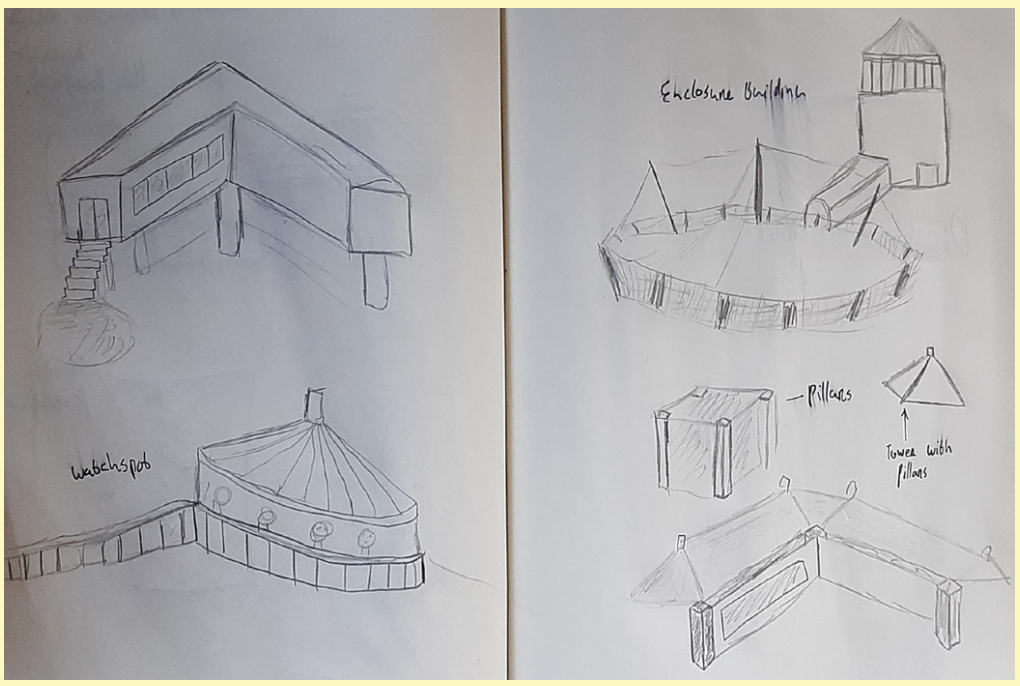
Sources Art direction: page 75 - source 55

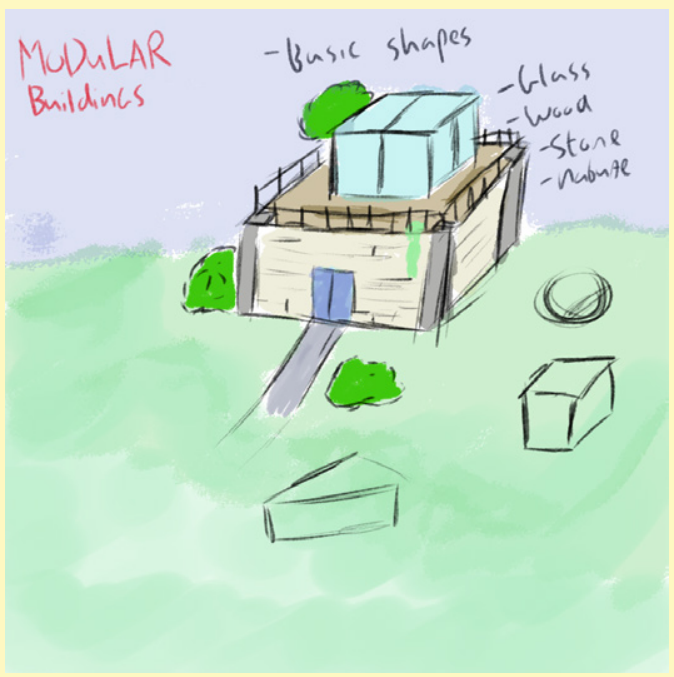
Researching modular buildings inside and out of the zoo and making sketches and artworks.

Inspiration:

Simple shapes
Reusable objects
material variation: stone - wood - glass - metal - organic etc.







After Gini talked about modular buildings, I started doing some research on buildings. In the zoo, there will be different buildings and it would be nice to work in one theme and to have modular stuff that could be reused.

In the end, I found ways to implement modularity for the zoo, even if the style changes. Modularity can save space and work more Efficient for the game but also you. This is one of the important things I learned at the minor.

Sources modular buildings: page 75 - sources 56-59

Environment process (sprint 2)

About:

Sprint 2 was mostly working on the researched things from sprint 1 and creating 3D models.
I also did more things outside my specialization, like creating a climbable plant.

Reflection sprint 2:

-I could create a nice level but has some issues with topology which messes with game.

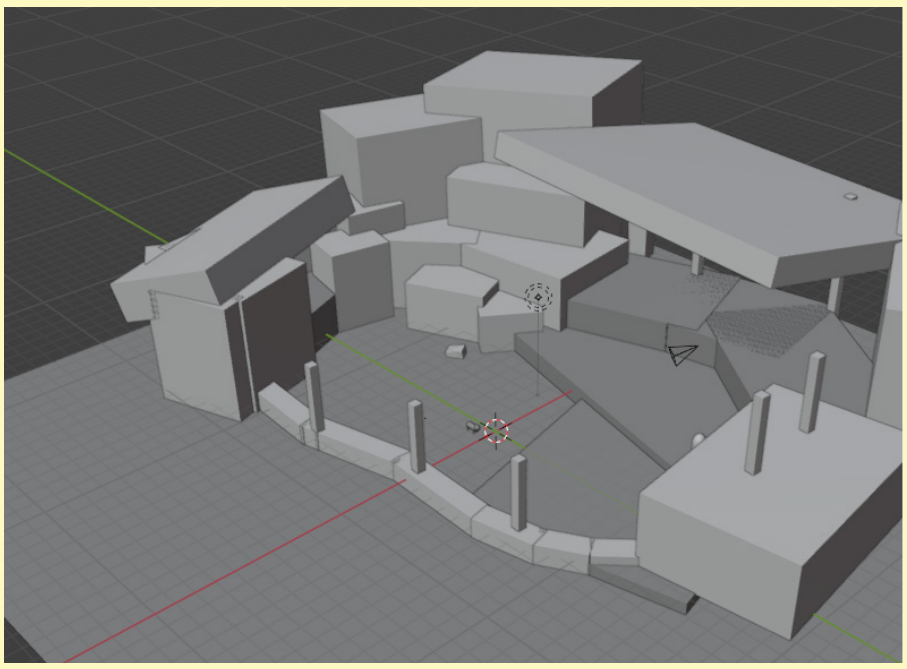
-Communication went better than Sprint 1, but there is still much to work on, like what design and art wants as direction for certain objects.

-Sometimes it was hard to distinguish between different specializations, like environment and foliage, and not take over work from another while also having my own things to do. This was an overall issue sometimes in the art team with the usage of the sheet that needed to be done but not filled in who needed to do it. This creates a situation where you could help out, but someone might already be working on it.

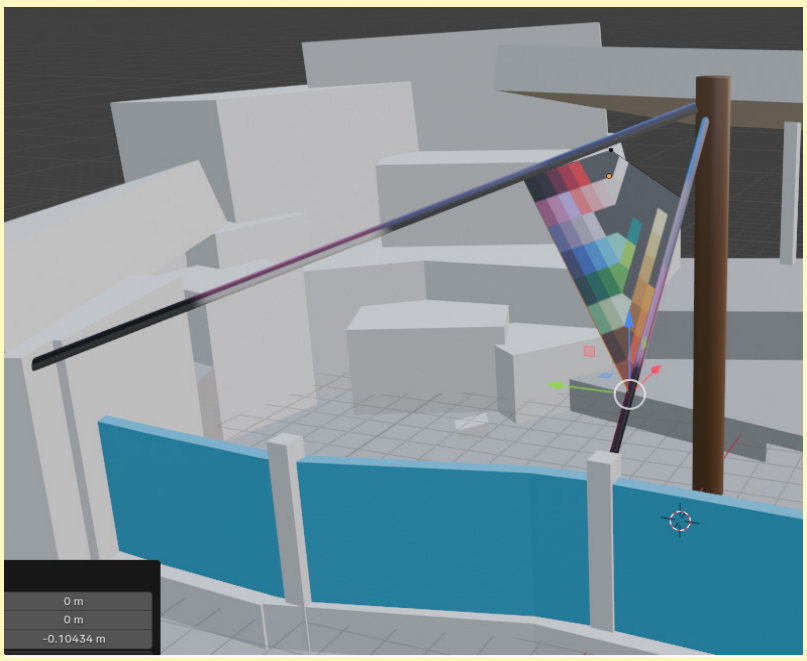
-For some models, I didn't make drawings, which could help with making simple changes and letting people reflect on them. An example of this are the background buildings that I directly modeled.

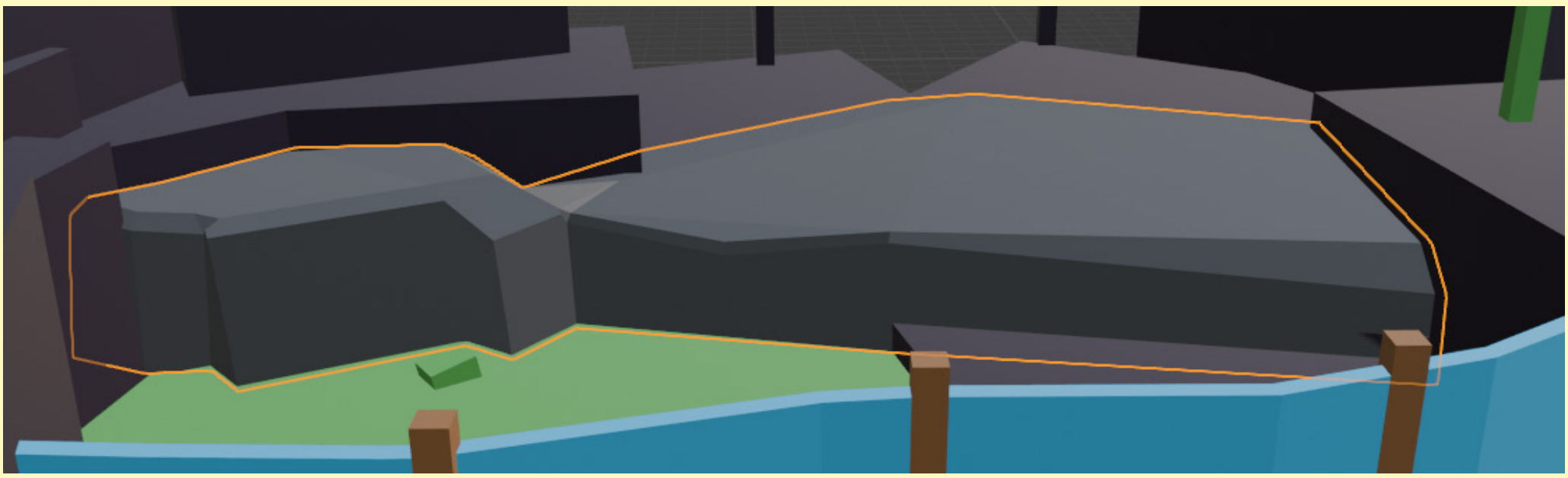
**Working on Ali’s enclosure and modular buildings that could be used in the enclosure or outside.
We mostly communicate with the design team since we have to work together. I also communicated with programming about what would work best for them, since Ali’s enclosure also has to work mechanically and not cause many bugs.**

I got the blockout version from design, which I exported into Blender



I created a glass wall and a protection net to propose to the design team. Many enclosures have some sort of protection net.



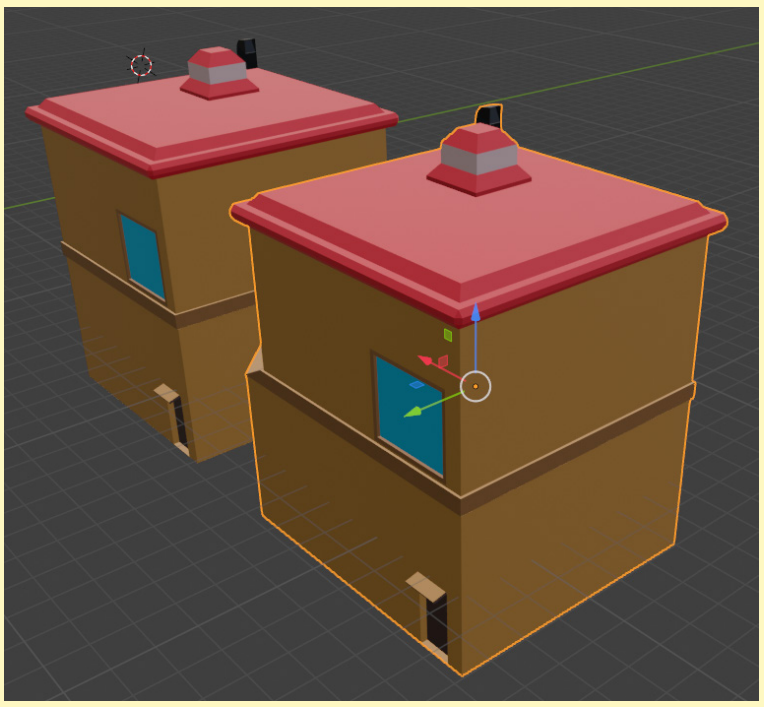


Creating the first test for the rocks. I want a simplistic style that goes with the chosen art style; however, there still has to be some nice shape in it. The idea came from earlier research on how even in the low poly style there can be more detail into it.

With the usage of the bevel function, I created more form in the rocks, so they look smoother and have some erosion effect, so it looks way better than just blockout cubes.

Creating first model buildings for inspiring the design team near Ali’s (red panda) enclosure.

With the building I went again with some sort of Asian theme from the red roofs with a special form in it and a air shaft on top, to the colored walls.



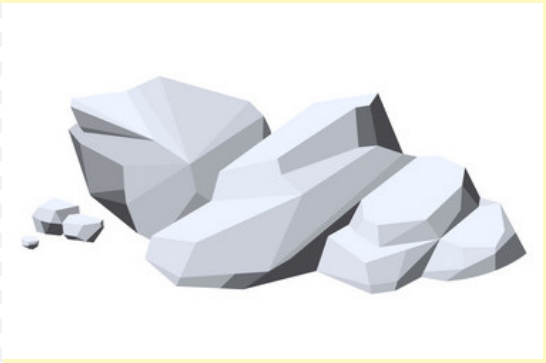
Extended research in rocks which is represented in a moodboard.

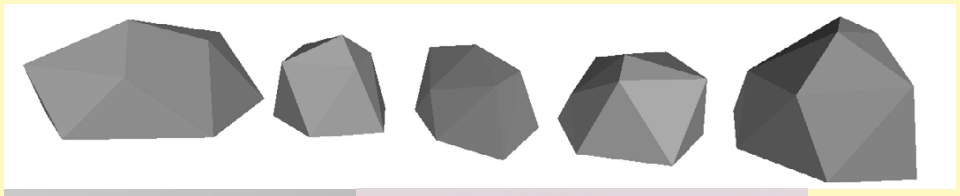
Extended research in rocks which is represented in a moodboard.

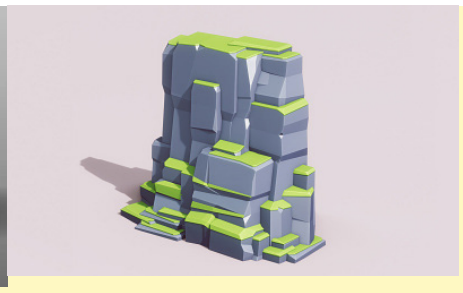
The direction of the art style came in many ways to low poly so I wanted to create something that goes in the style.

The environment is something where basically 90-100% of the gameplay will take place so it’s important to have a nice artstyle that blends in with everything.

Moodboard rock





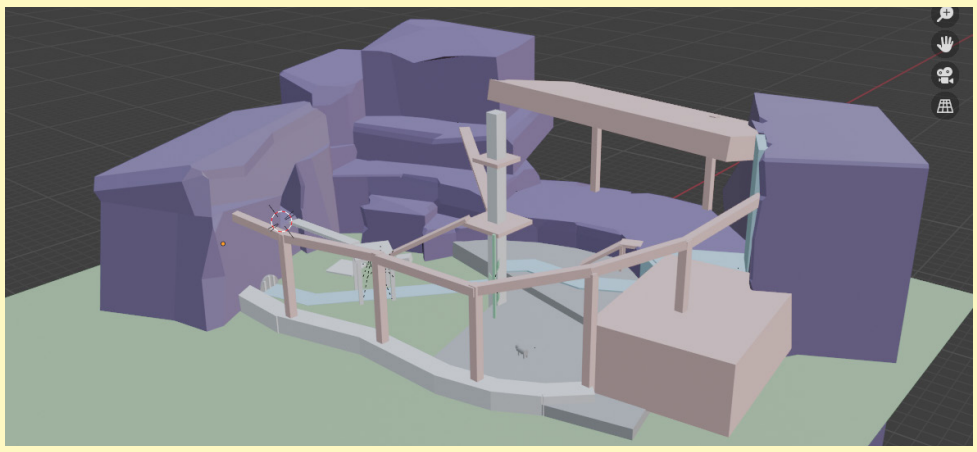


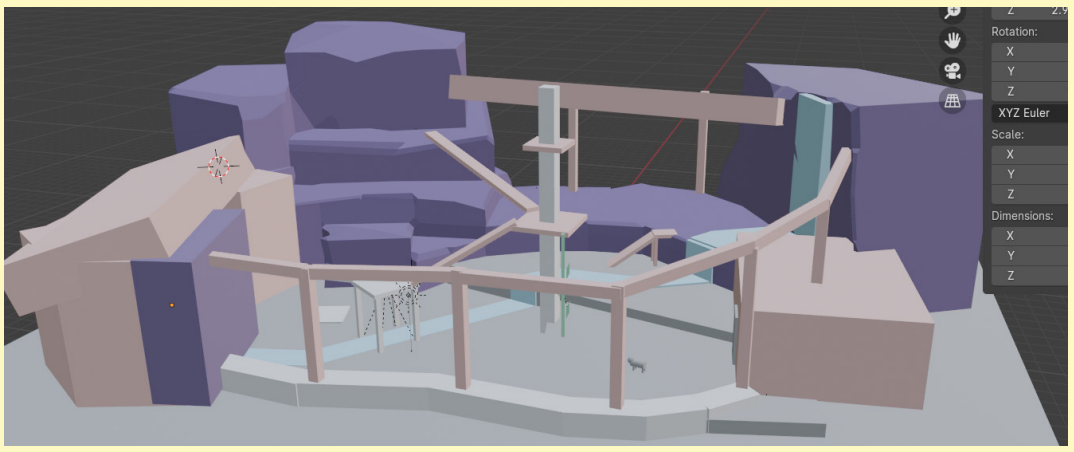
Creating an iteration for the rocks in Ali’s enclosure.

The key difference is the color of them. I talked it through with art and design and we found this color working the best in the artstyle.

Later on this would be changed with a new color palette where I decided on a new color.

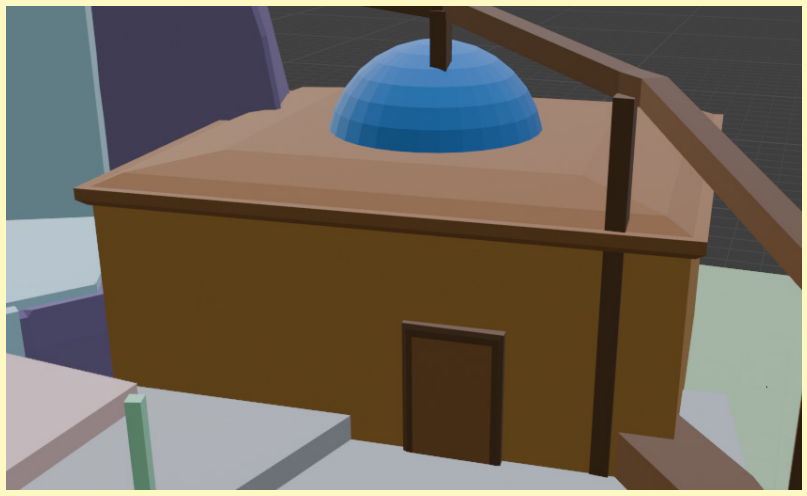
I also made the first version of the cave.





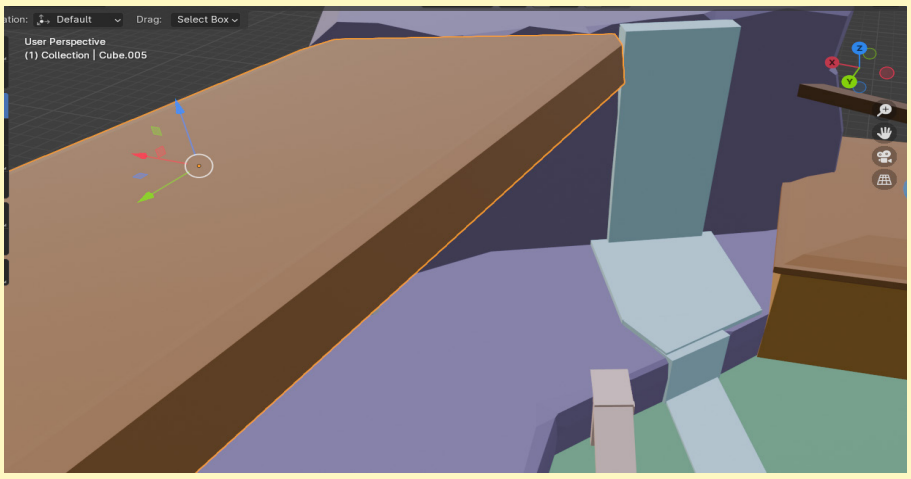
Creating a building for the enclosure with a door for zookeepers to go through.

Creating a building for the enclosure
with a door for zookeepers to go through.
The building has the same color as the wooden like walls
to blend more in. I had the idea to also add a bole to make
the building stand out more, and that natural light could go in.

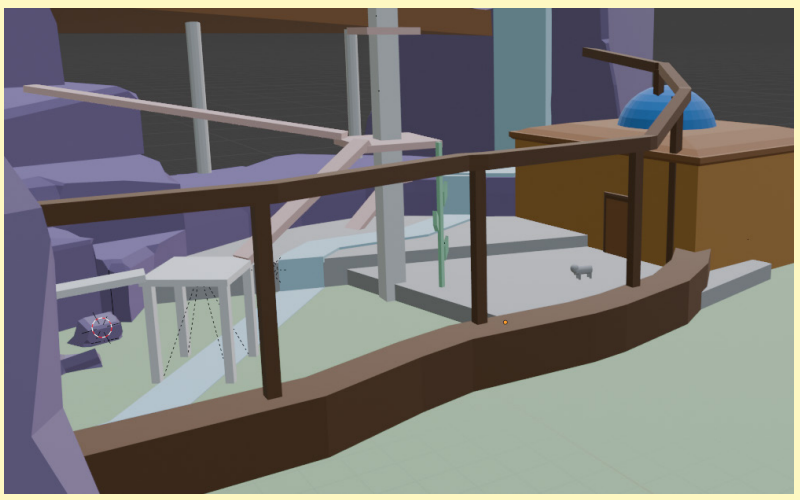


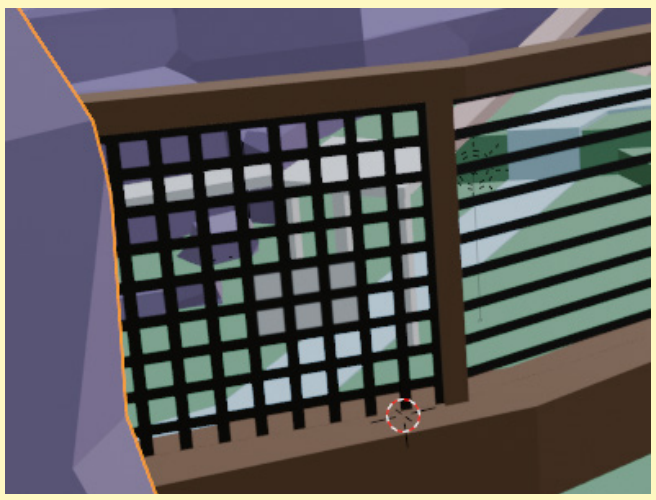
Sources Moodboard rocks: page 76 - sources 63-66

For the researched art style, I worked with basic shapes that use nice rounding to have more advanced details.

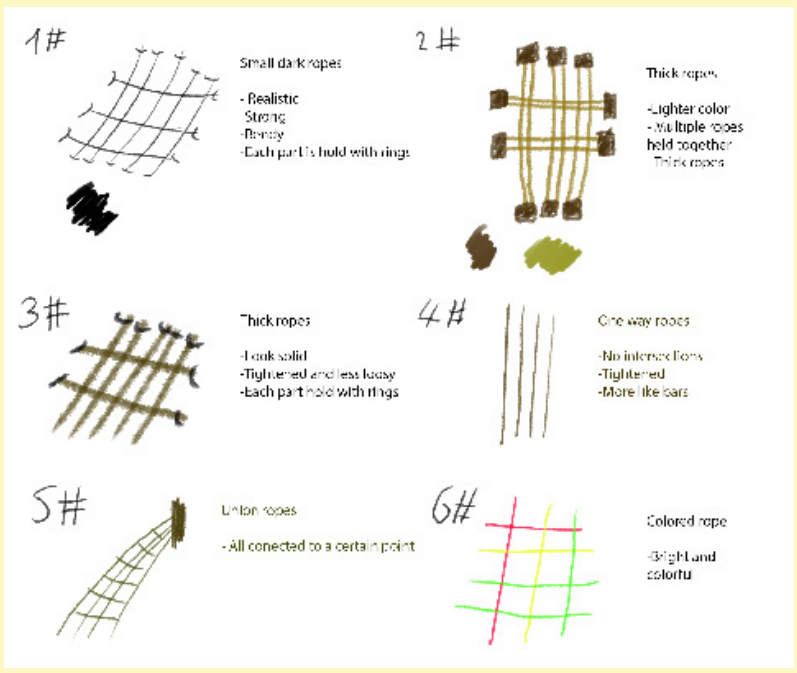


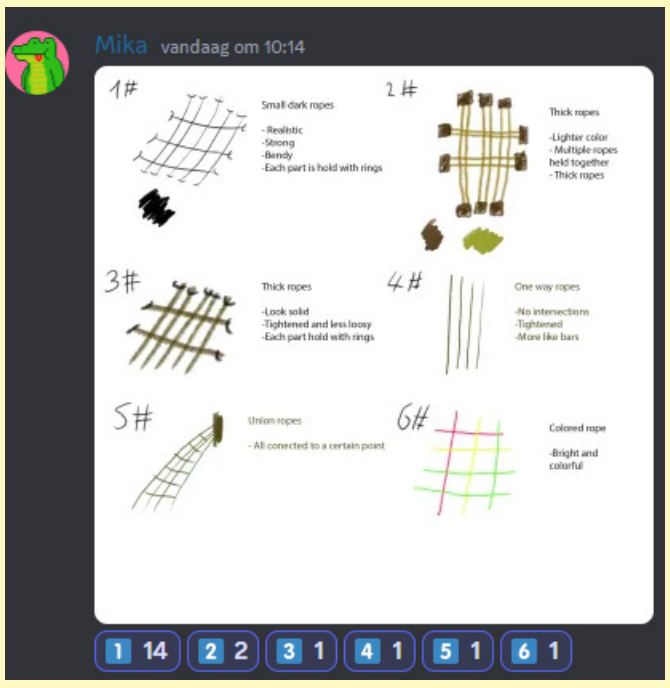
Making a wall that has to keep Ali in realistically but also have both the NPC's and the player look through it naturally. In the beginning, I made a glass wall, but looking back at my research and art direction, I wanted something different from just a glass wall.





I did an iteration on the glass wall.
I came up with the idea to have a net that potentially could be used by Ali to climb on.



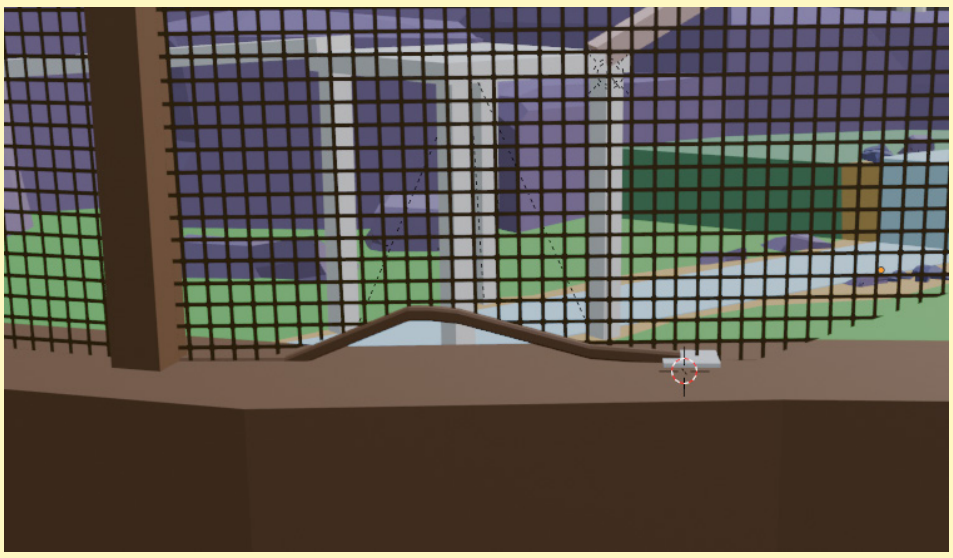


Since there are many different nets I went back to making basic sketches and use a form of participatory design to let people vote what type of net they like.

In the end, one of the nets got voted which I implemented.

To make the net more realistic, I made wooden bars that would hold the net.

Later, this would be a core mechanic of the main enclosure since through one of these holes, Ali would escape.

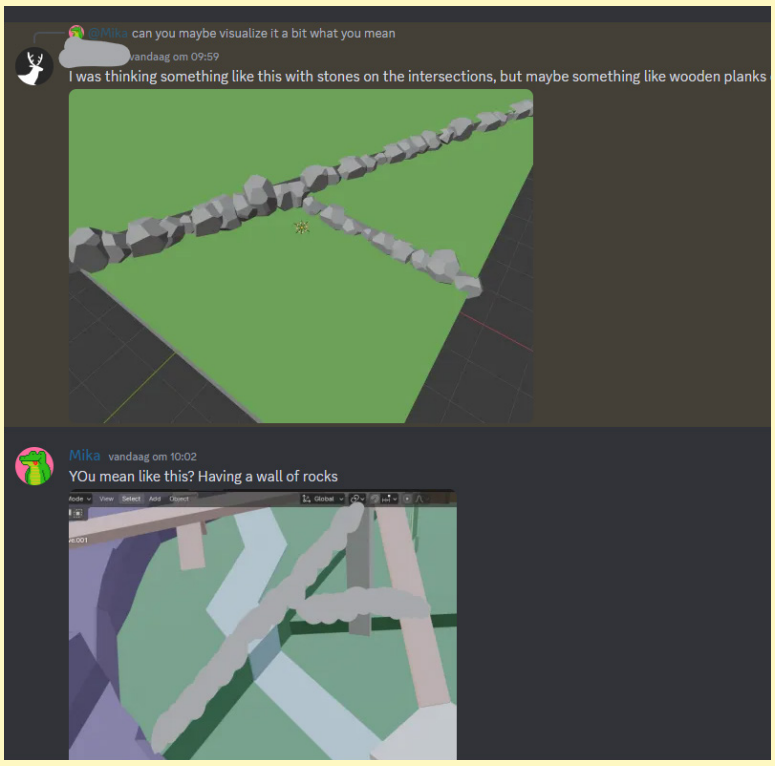


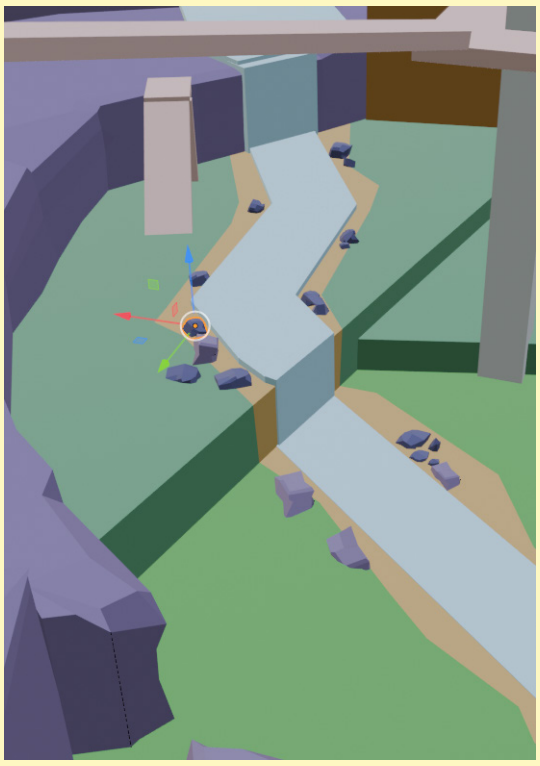
Talking about design for decoration with gameplay

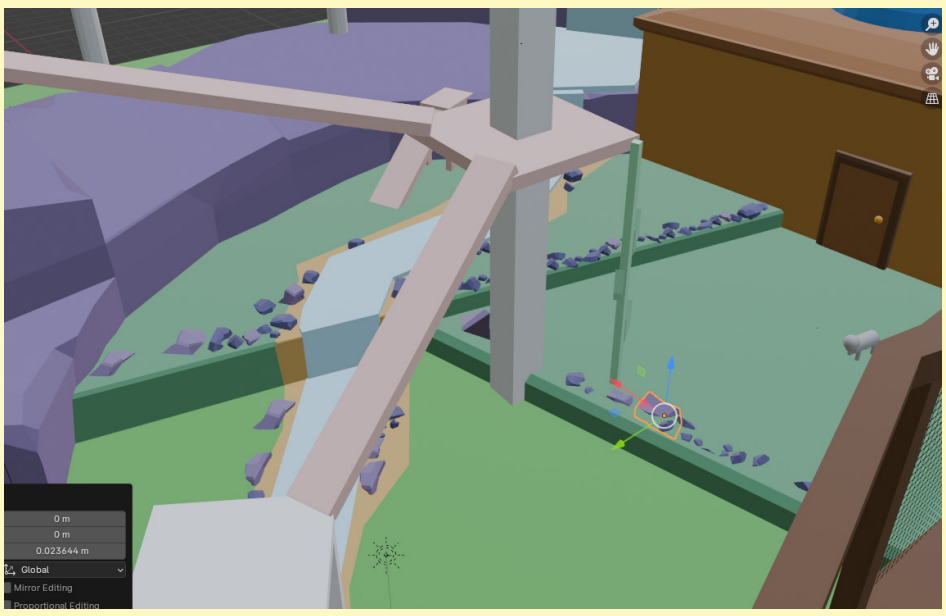
Making quick visuals and having a cleared view. I also came up with the idea to maybe use some sand near the water to add realism and diversity to the ground.

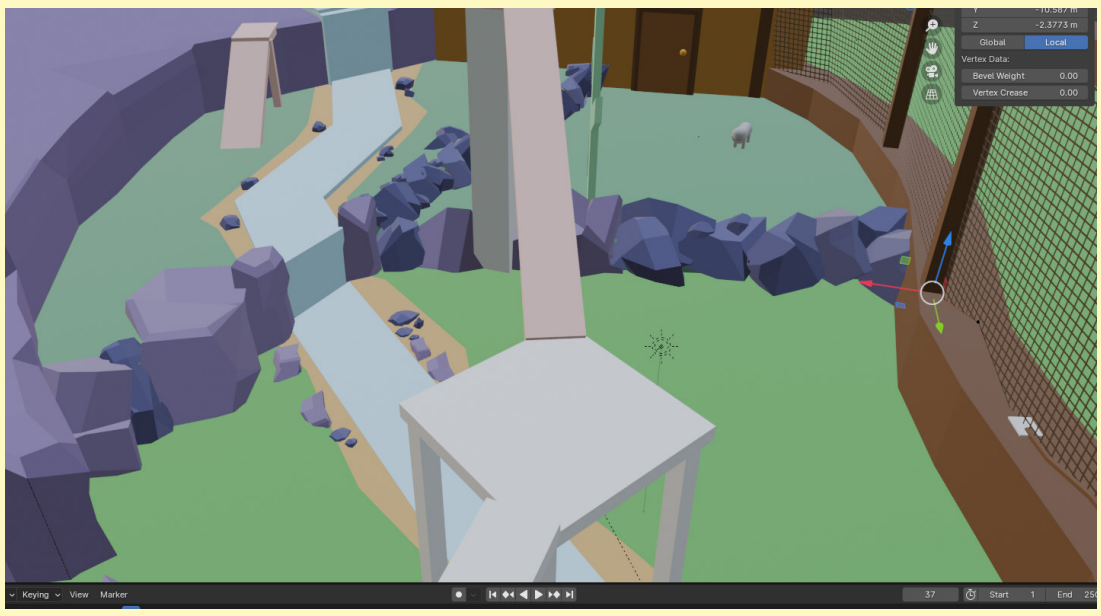
The rocks had the purpose of making the ground more beautiful and realistic, but they also made the gameplay different, since Ali can't just go everywhere anymore.

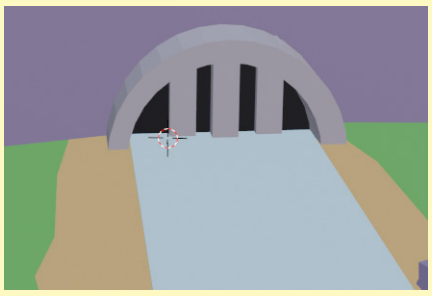
This is the part where environment design can be more than making nice stuff. It also influences the core components of a game outside of visuals.





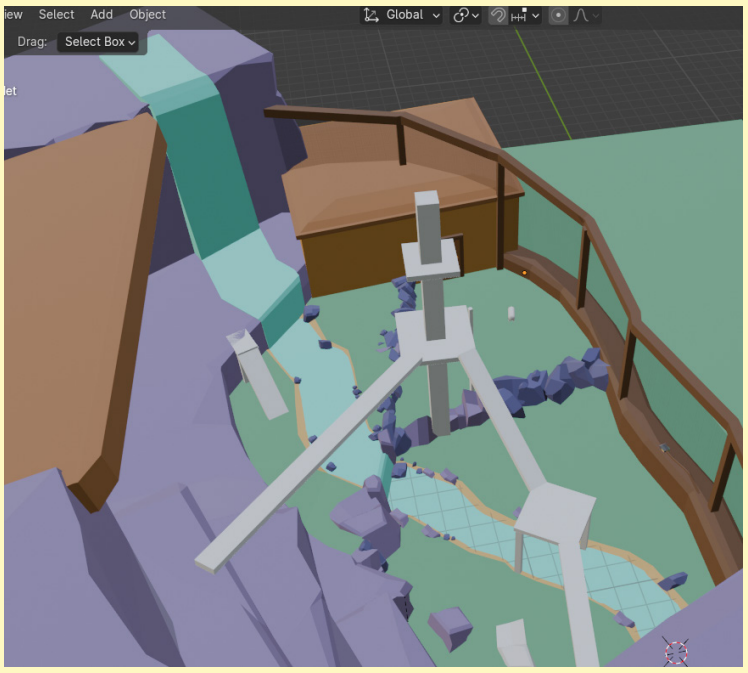






Hiding the edges under drainage system.

Working further on Ali’s enclosure.
Ali’s enclosure is the main entrance to the game. It’s important to look very appealing, so the player wants to go further into the game.



Creating new water for the level. The water goes better with the ground now.

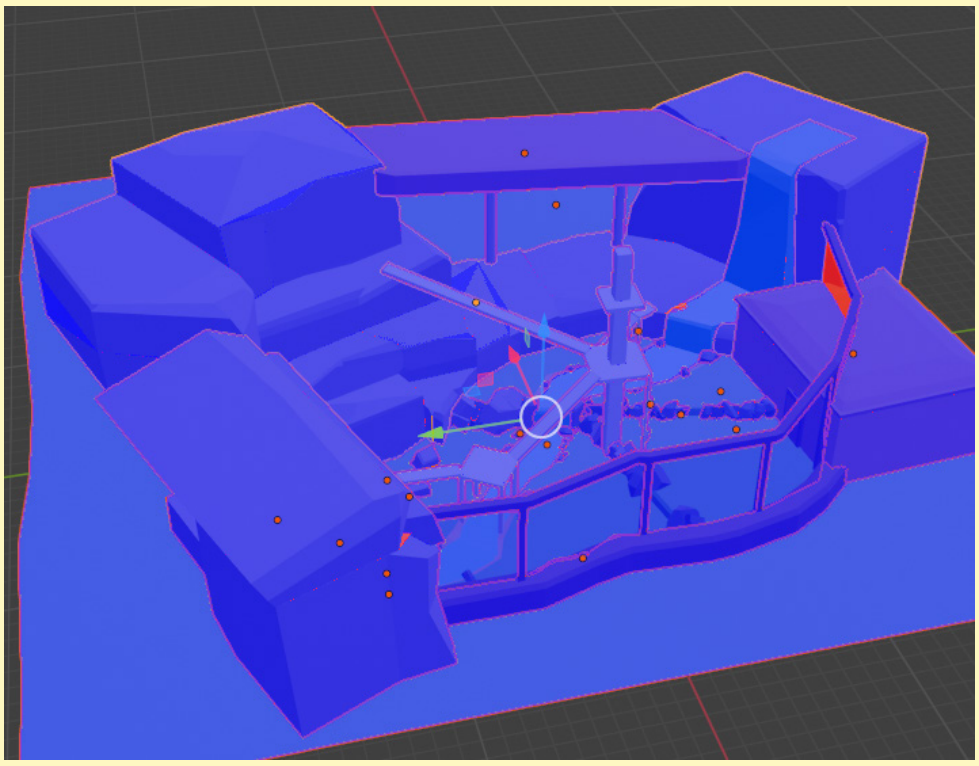
It was also important for the integration member since he also worked on a special water shader that needed a model of water that goes further than separate blocks.

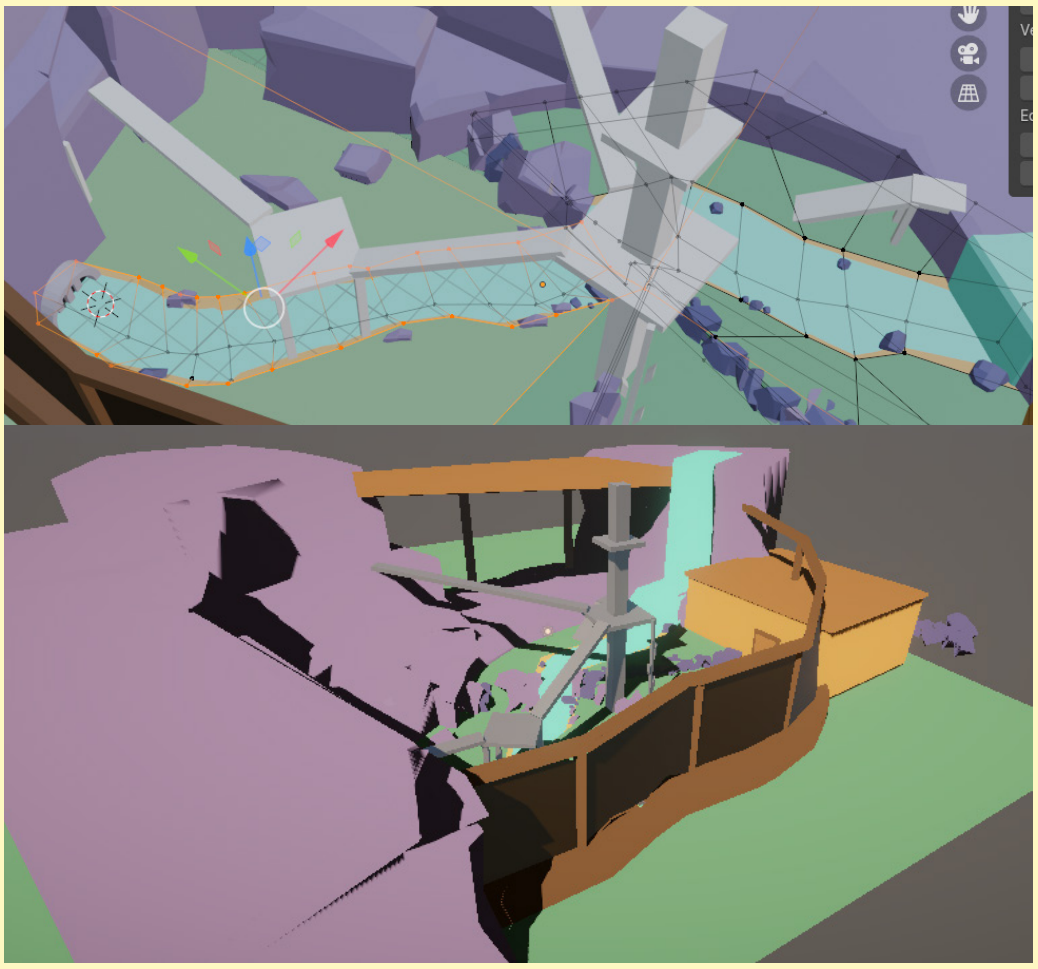
After working on making things nice, it was also important to go further on the technical part of the map. The map had some serious issues with rendering but also had some weird things going on, like the normal maps being inverted and such.

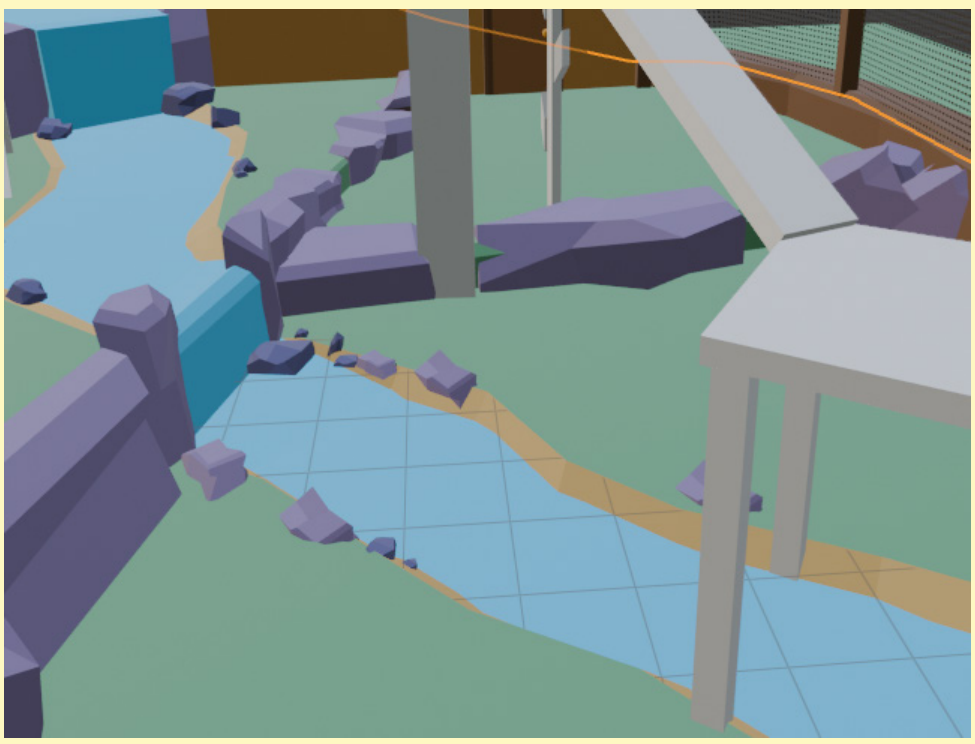
Redoing rocks, water, and such to make it work better in Unity.

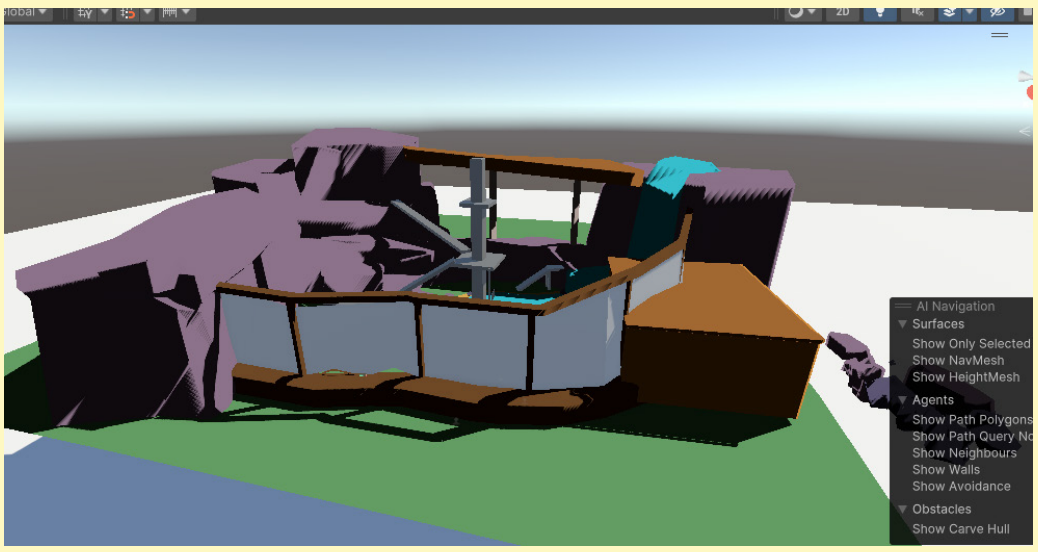
In Unity, a lot of the maps work. There were some issues with the net texture that didn’t go well on the prefab, but it worked when you dragged the material on it.

I made stuff next to the map so that design could play around with it.

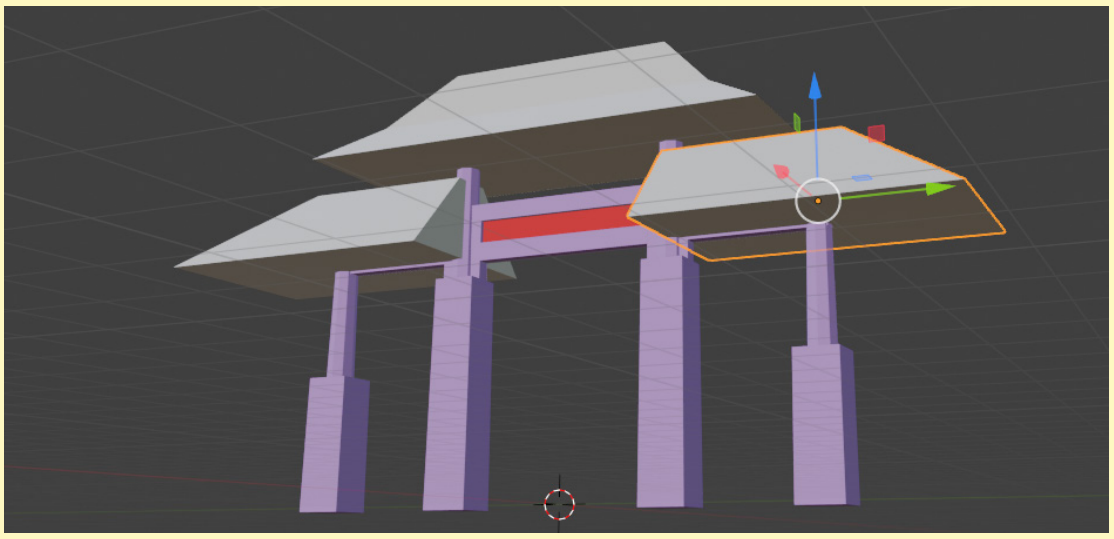








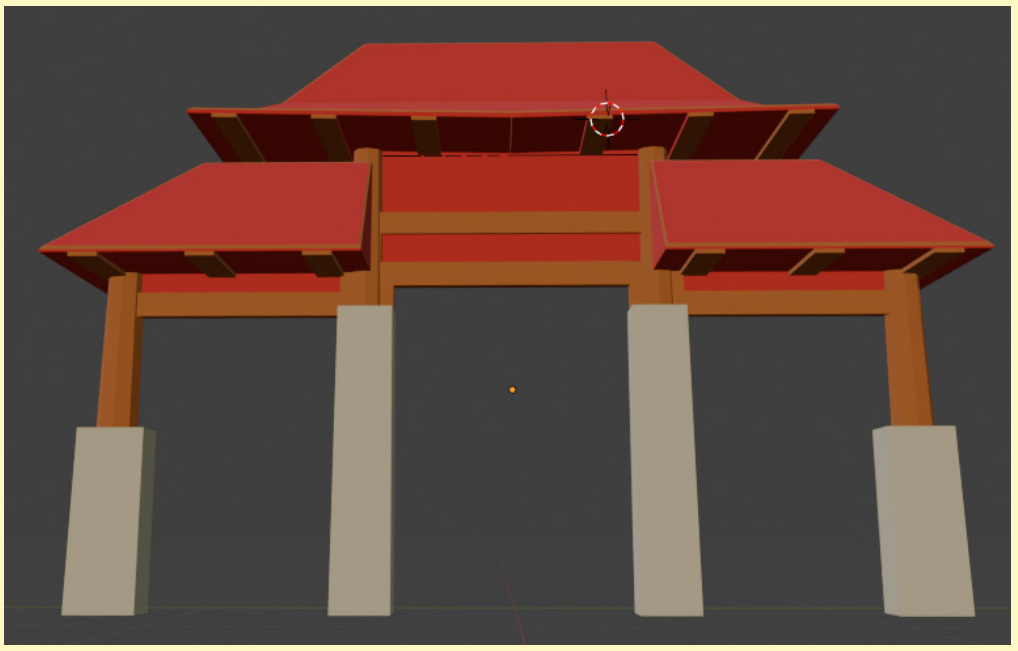
We are working on an Asian gate that would be a nice entrance to the Asian part of the zoo.
It can invite the player to go through it and get an idea of the thematic.

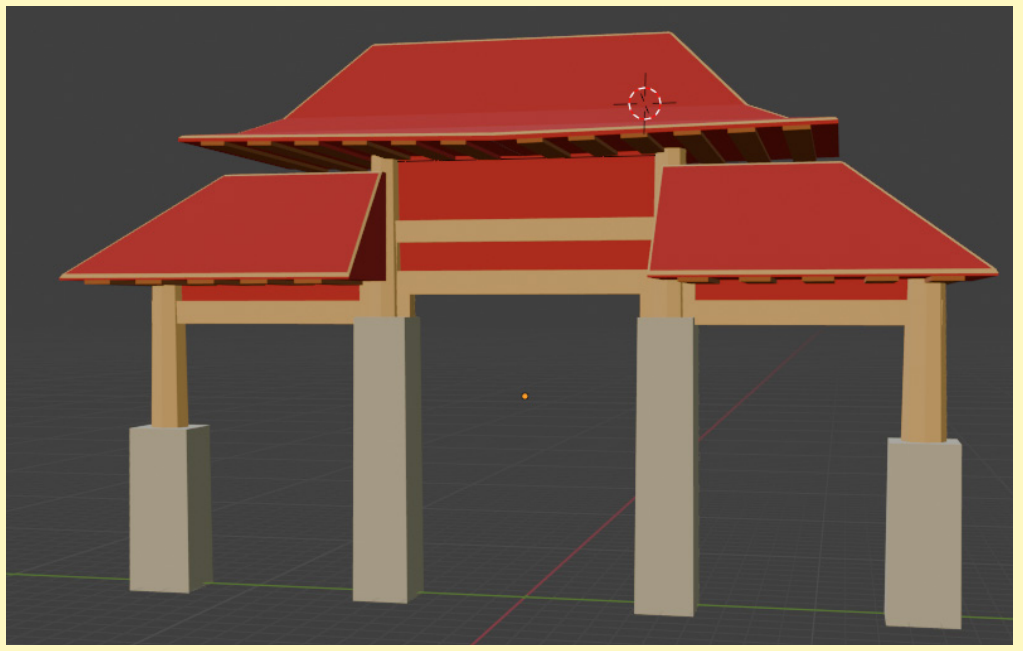


I looked back at earlier-made sketches, done research and came up with an Asian gate.

The Asian gate has charismatic height, which makes it a sort of weenie that attracts people to it from a distance.

I tried out the same colors of the rocks to see if this would work
as a strong foundation. It felt unrealistic and didn't look visually appealing.



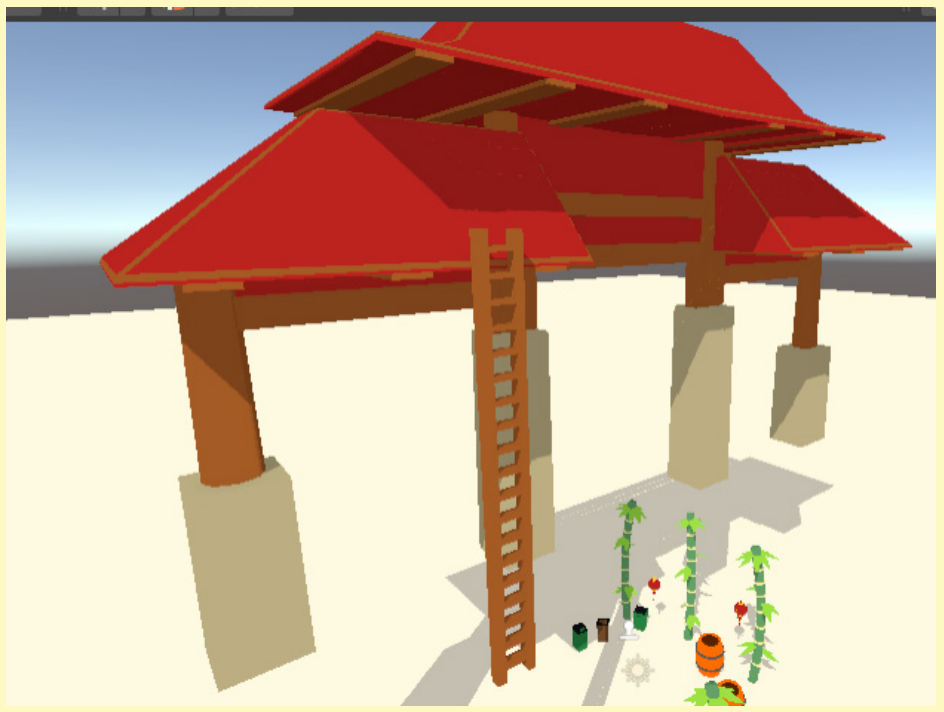


I went with a color thematic that was on the color palette of the game.

I went with the red color since that was an overall main design choice to have for the Asian thematic, and since it's a gate, it would also invite people into the Asian thematic, so it also needed to reflect this style.

Further, there are the wooden support beams that blend with the red and look realistic.

The under part is made from strong stone, which is accented with the strong and only gray usage.



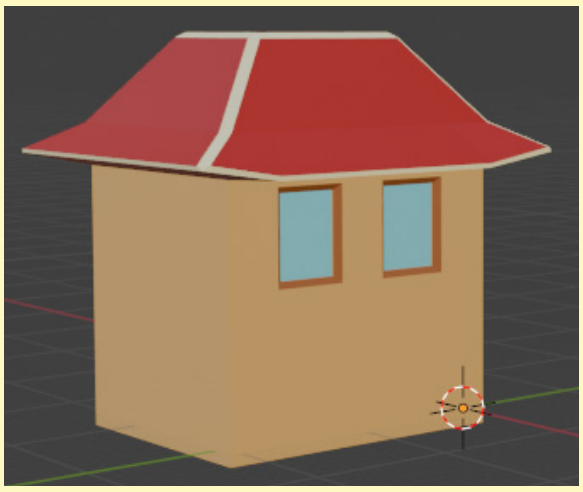
After talking about gameplay, they also wanted a way to climb it. I could remodel a lot, but I went with adding something really obvious for the player.

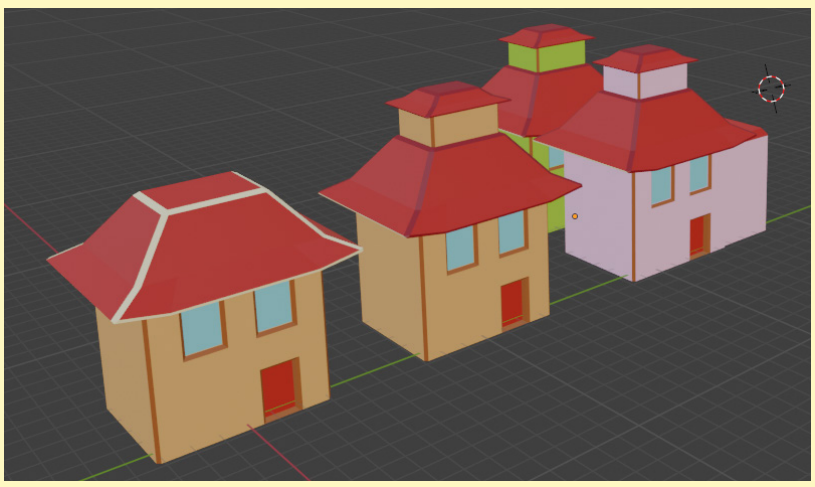
A ladder would be something simple and obvious to climb.

Making buildings for in the Asian section and generic buildings for the background.

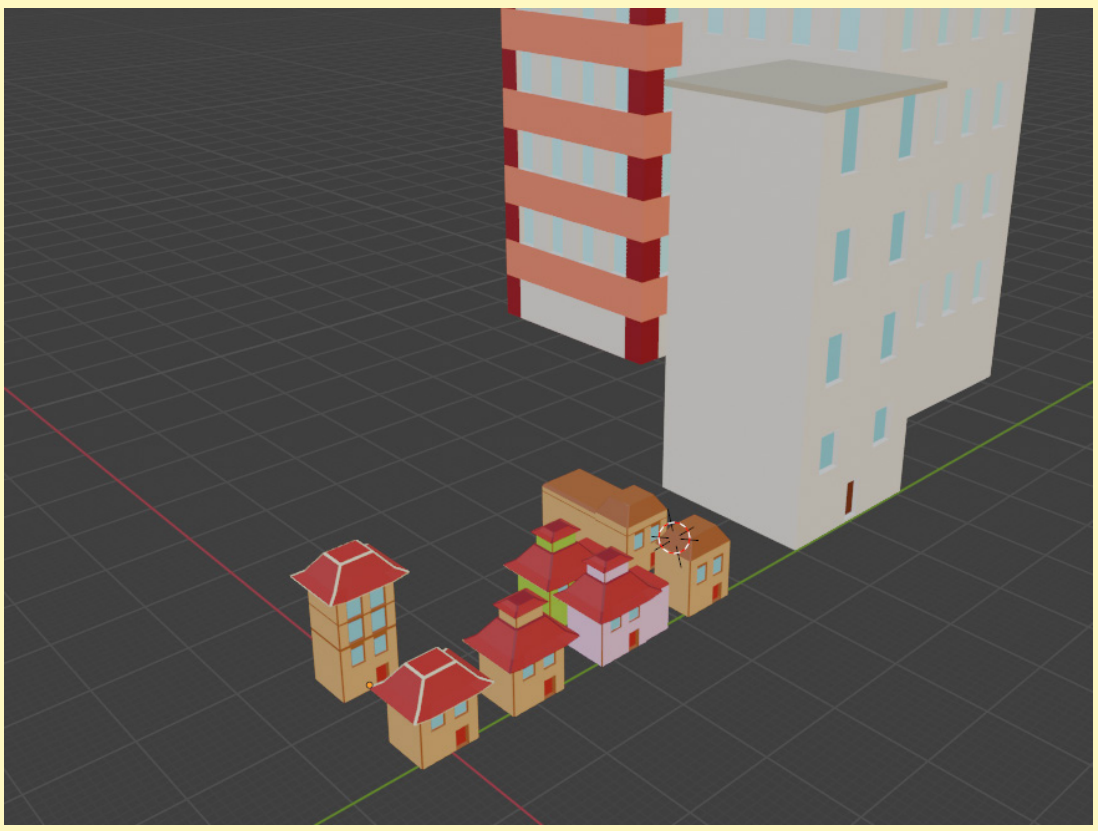
We want something outside the zoo that gives us an idea of where the zoo is. It shows that there are people around the zoo and that the world is not just one zoo. The buildings need to look nice but not become a weenie (something the player wants to go to). It's just for background.

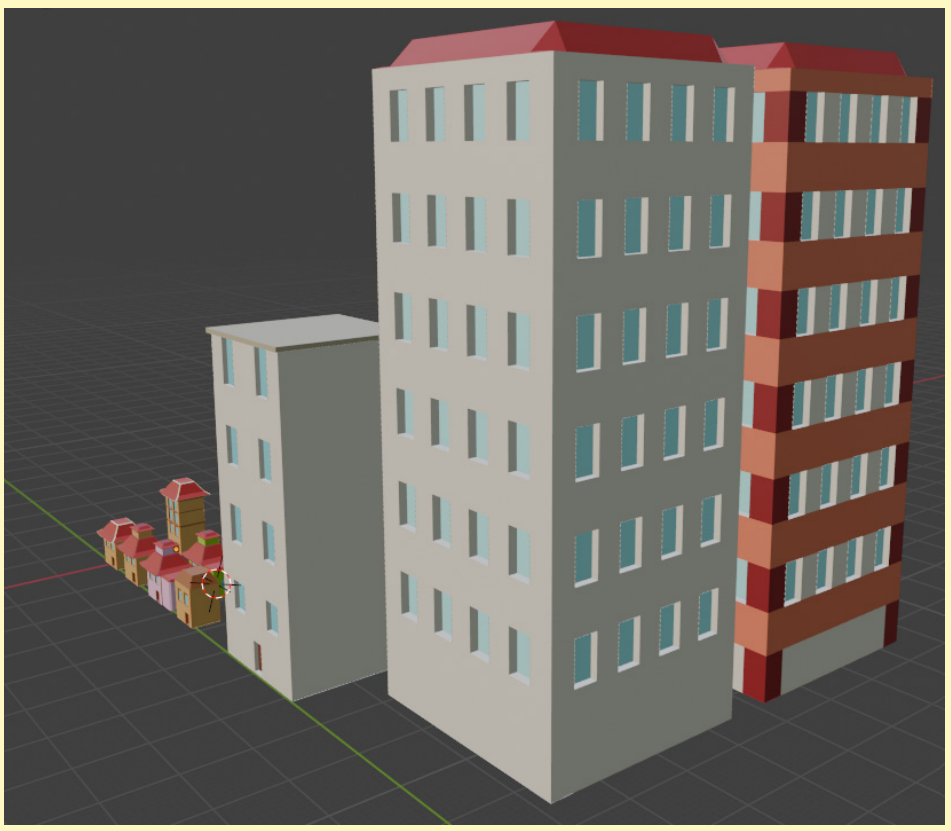
Creating smaller Asian buildings. I used my earlier color theme like for the Asian gate but now I made some iterations since it would be nice to fill a nice colorful world with nice colorful buildings too support the overall theme.





For the big buildings, I looked for apartment and office complexes. They are usually really tall, so you could see them in the background in real life, and make use of many windows for natural light to come in.





In the end, I had a model pack that the design team could use to place in the background.

Environment process (sprint 3)

About:

Sprint 3 was mostly working on the enclosures, background buildings, and a path with additional research. The start of the Panda enclosure was made by me; gameplay had issues finishing the blockout where I made the decision to continue on it; otherwise, else the panda enclosure might not be finished with the final sprint.

Reflection sprint 3:

-Integration was pretty hard with getting my stuff to branch.

- I could create a nice level but has some issues with topology.

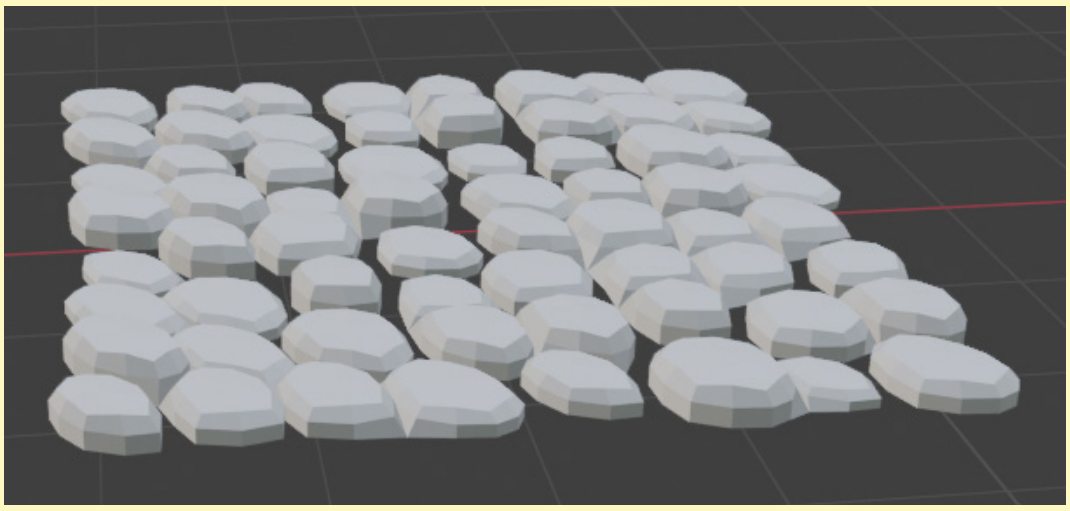
- I improved on the previous sprint by doing more research with an example of the background buildings.

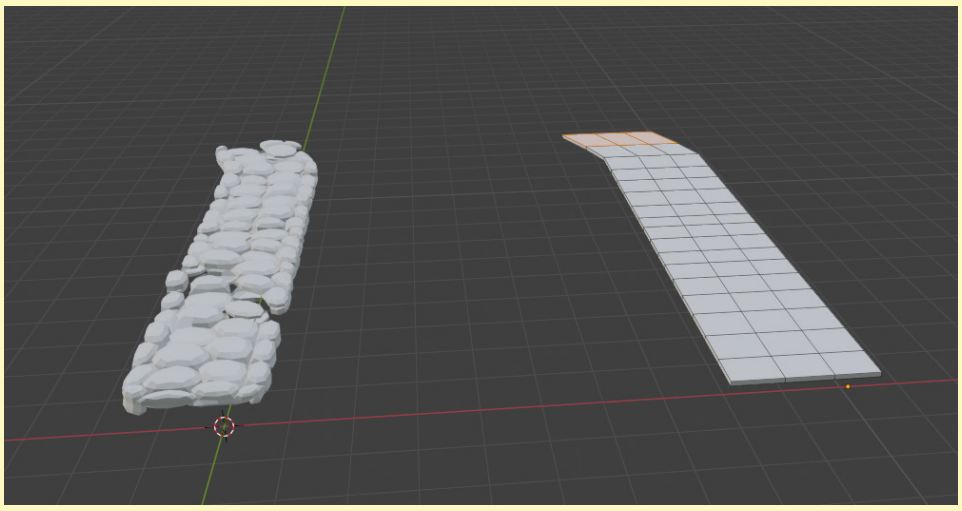
-When I model stuff, I usually do not draw stuff. After reviewing, a lot of people advised me to sketch more before I modeled something. When I look back at what I did in Sprint 1 and the others I saw, I stopped sketching to directly model stuff. When I look at the buildings, I make a lot of iterations, and I am really happy about it; however, sketching more could help me with maybe making a few good specific ones and letting them get reviewed by others.

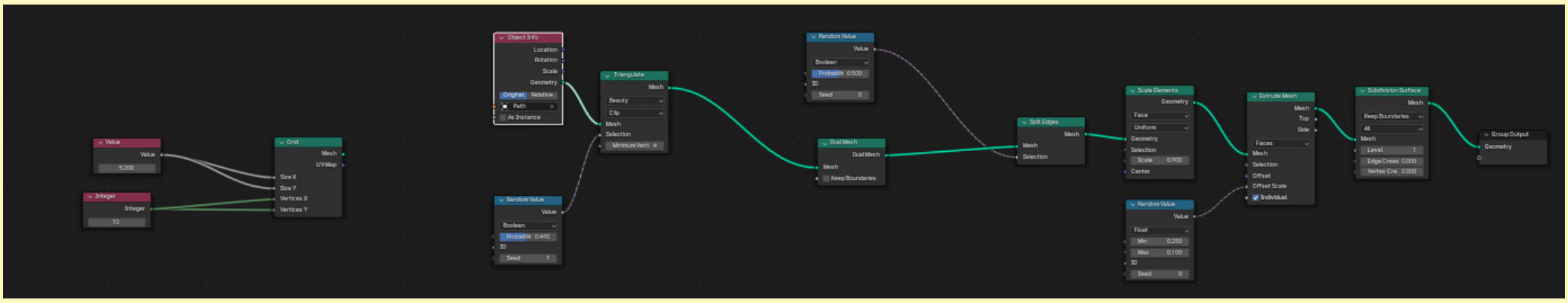
-There were issues with the gameplay team, which also affected the other teams and my work. The panda enclosure was at the end of the sprint and still not finished, so I had to come up with other things to do, like make a background layout for the zoo.

I’m working on a path in the zoo where NPCs and the player can walk over.

I used a new approach after finding a tutorial online to create procedural paths.
I wanted to try out new ways to work in a new environment.







To create a path later on, it would be nice to have a quick method to approach this task.

Geometry nodes could be a solution to this. Instead of having to model individual rocks, you have nodes that do it for you. The only thing you need is the layout of the path.

On the left, you can see how I made a simple path that is recreated in rocks.

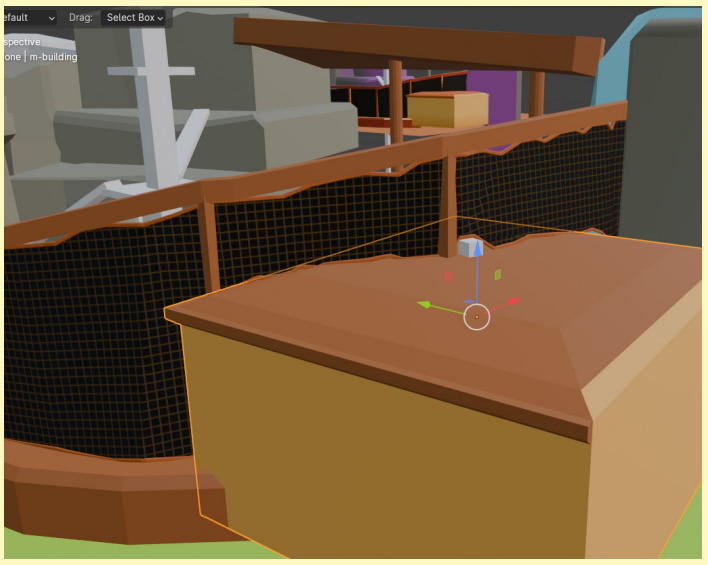
One of the major downsides of this approach is the amount of polys.

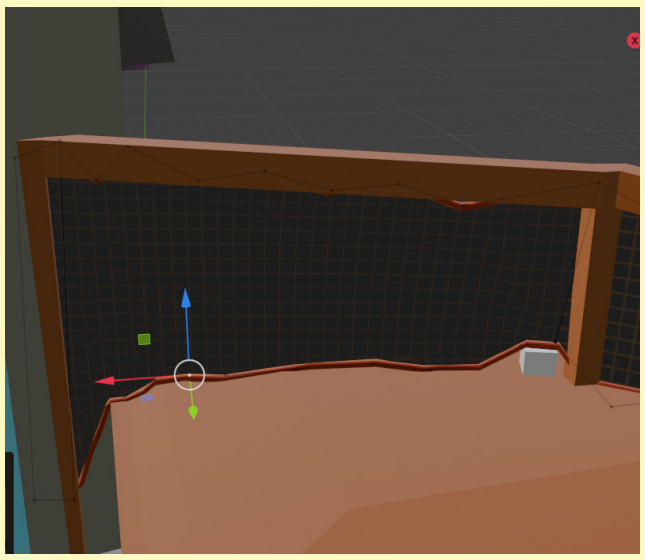
I and others in design and art choose to go with a path model and create a texture for it.

Link path video (own material): https://youtu.be/tv5g1VnkmSk

Procedural path: page 76 - source 69

Fixing things in Ali’s enclosure, like the net and changing models.

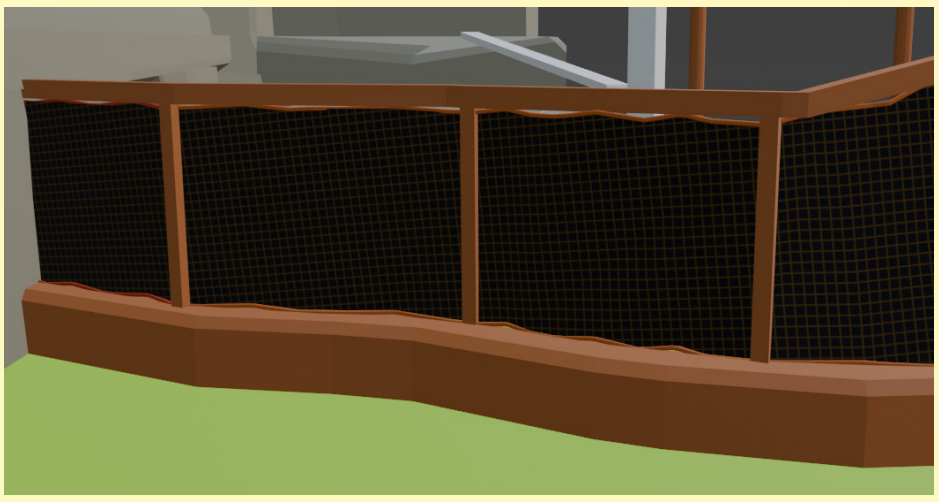


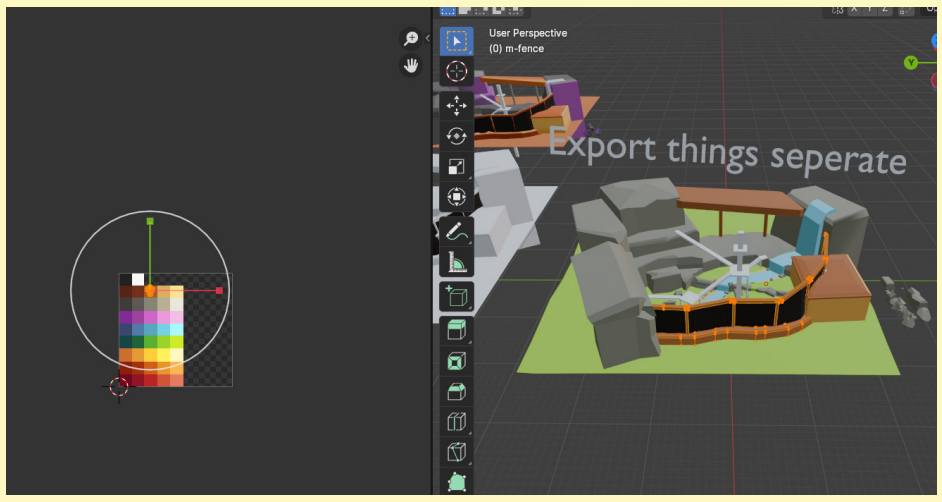


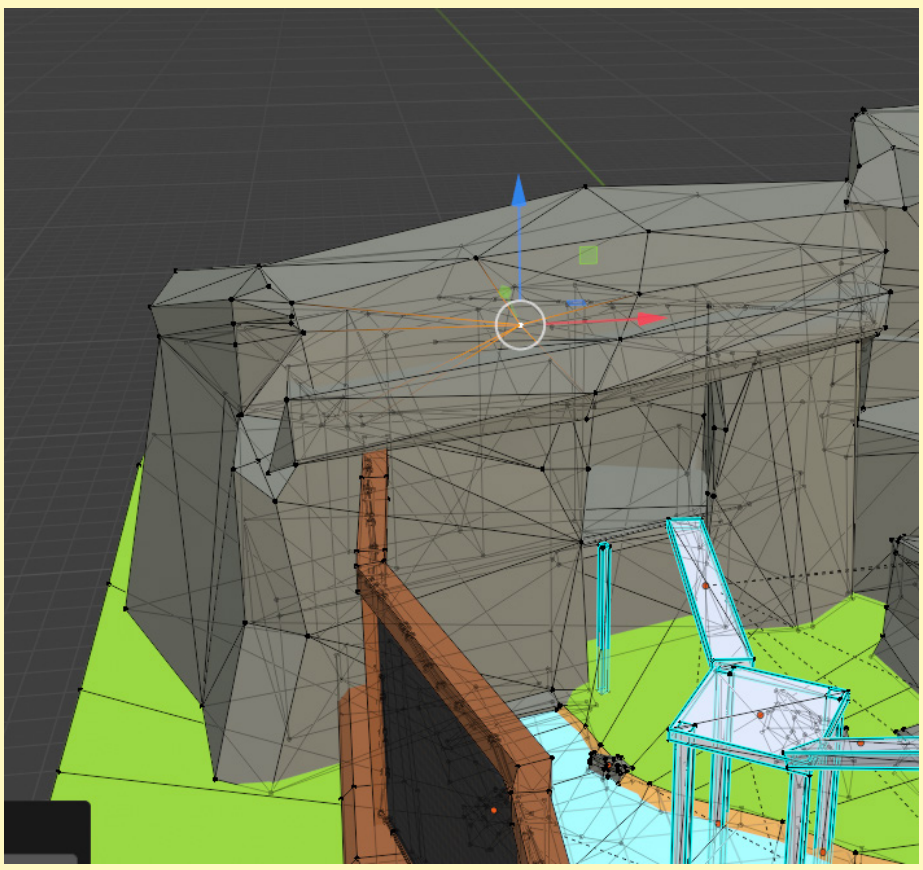
Making a better net and having a new escape for Ali, which I talked about with design.

The new net is more detailed, and the new escape challenges the player more to look around.
This was in a meeting with game design.

Using a new texture palette with new colors.







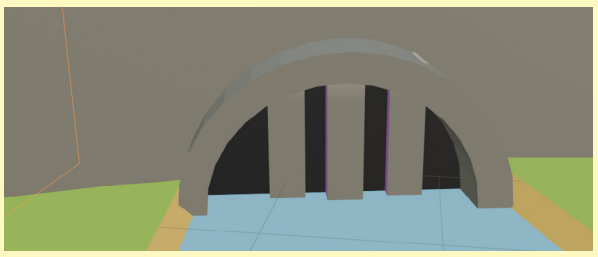
Changing the color of the rocks. The gray rock looks better and the purple-like ones looked unrealistic and not that good with the used shader for the game.

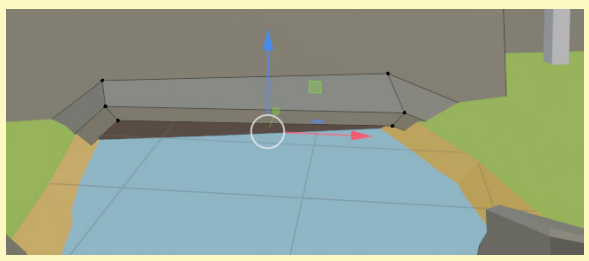
Fixing the topology of the cave. The integration member fixed major part of the rocks while I continued with the cave.

He taught me how to fix topologies.
An example of this is pressing f3 and going to look for faces by side. I sometimes had more than 12 vertices on a side, so I had to reduce that.

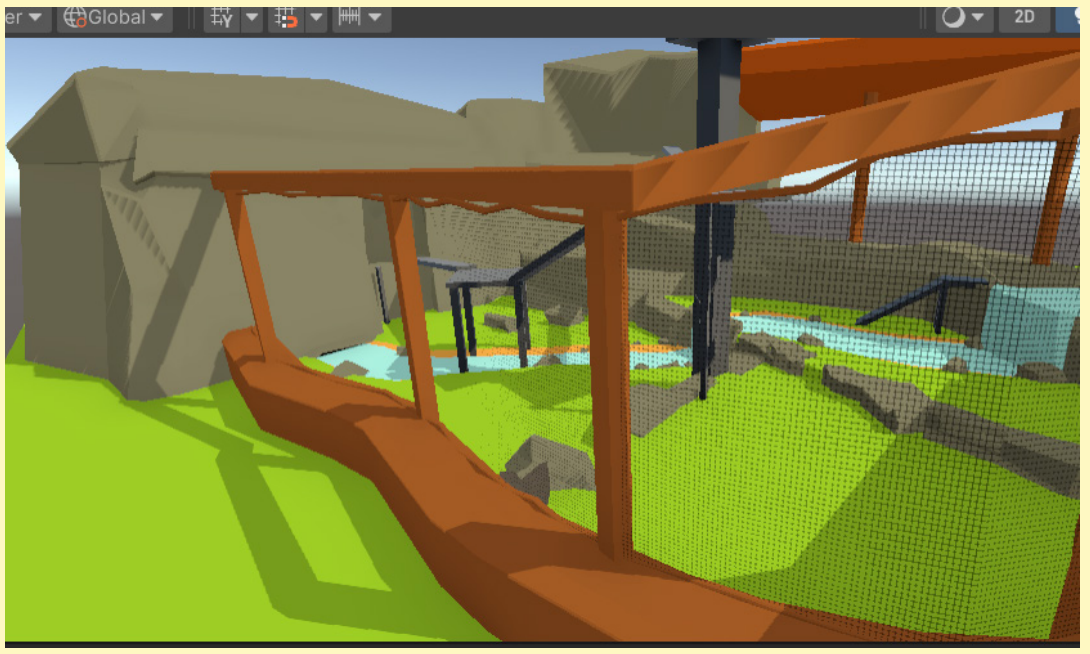
There were faced with a lot of points, so that needed to be reduced to 4 or 3.

This was a core learning moment, so models have fewer issues and bugs.



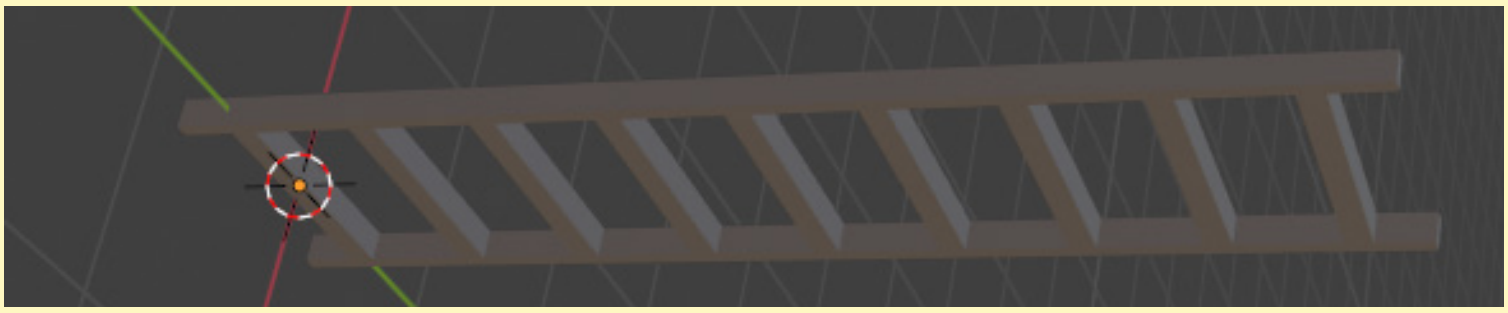


Changing the escape for the water to something that looks more natural and blends with the environment. The other one is too distracting and it has no purpose mechanic wise.



Fixing the net further and changing the color palette of the enclosure. It looks more natural, and the colors are a huge improvement for the overall game.

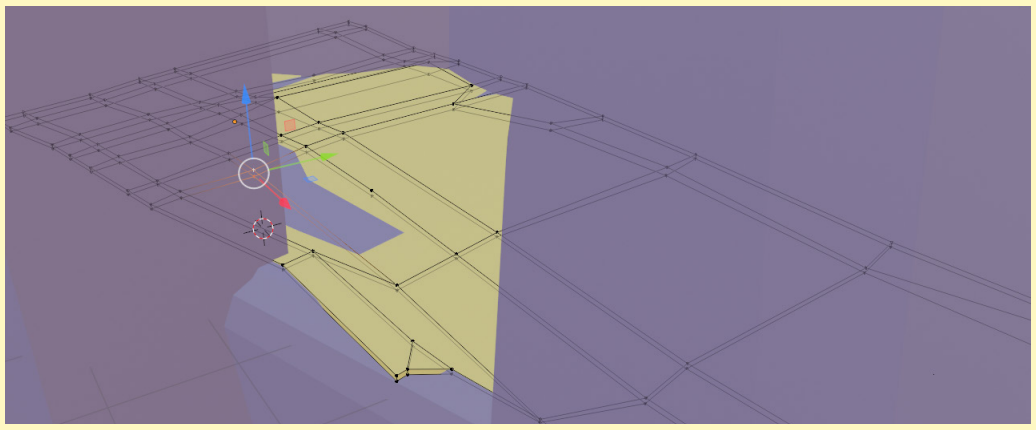
Making another ladder quickly for the enclosure.
Game design asked for it and wanted it as soon as possible.



Making hay for Ali's cave.

Just like the purple color, it was later on unused since the props artist had already made hay.

Sometimes there is misscommunication but we could fix it for a good outcome.



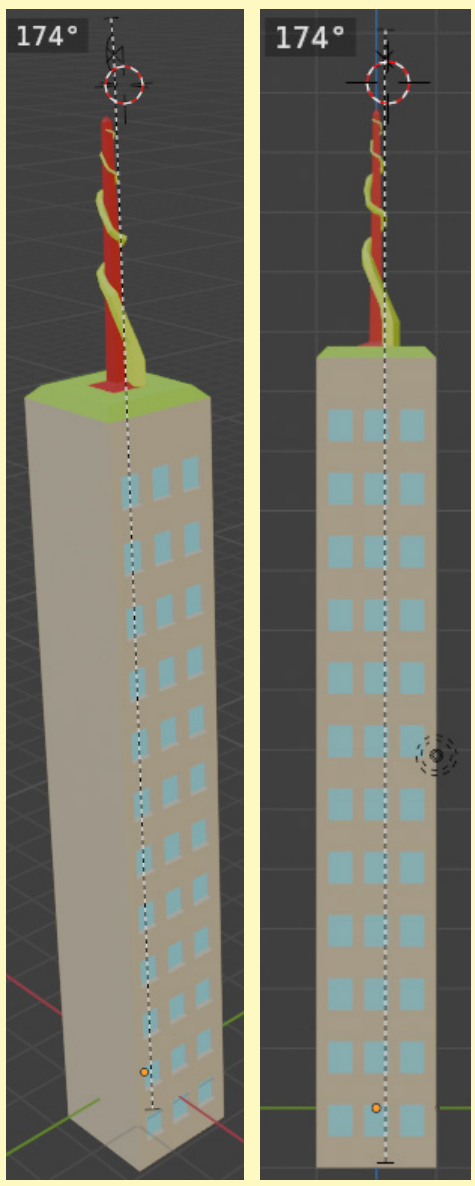
Going back to the background buildings, but with deeper research on how other games implement it

Animal crossing:
Animal crossing uses usable object that fade in the background.
This could work with the game with a shadow that hides the objects.

Kirby and the Forgotten Land:
The style really goes well with I already made. Buildings with a lot of nature on it.
The only thing is that Kirby is in the mostly abandoned world and we don't want it.

Halo:
Halo has mostly huge things in the background to attract the player in the world even if they can't reach it.

Fortnite:
Greenery with many trees. Also you can see some buildings in the background.



I created a new building with the iteration of my research.

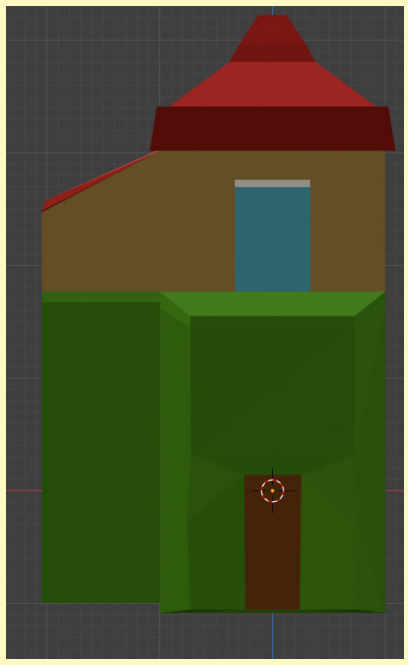
The building kept the concrete foundation with glasses where you could assume a lot of people would work in it, just like in a regular city.

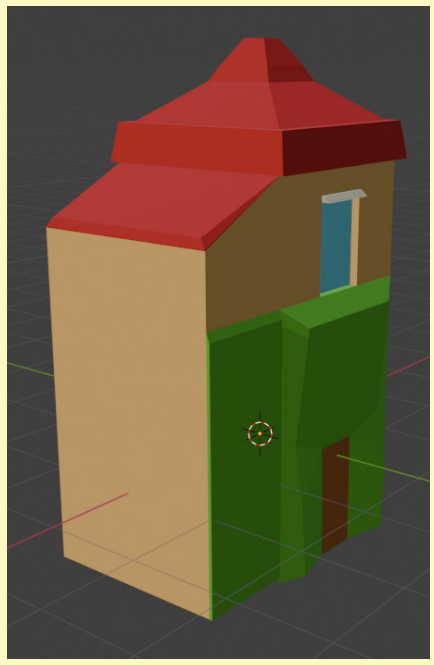
What makes this building different is the top part that is covered with a plant. With the shape of the plant, it looks well maintained and intentional. With this, the building has nature implemented without looking abandoned.

The red tip also goes back to the Asian theme, keeping a similar color theme.

The same principle was used, but on a smaller scale.
I experimented with creating a smaller building that has green on the front side.

It looks like a plant wall that was intentionally made.



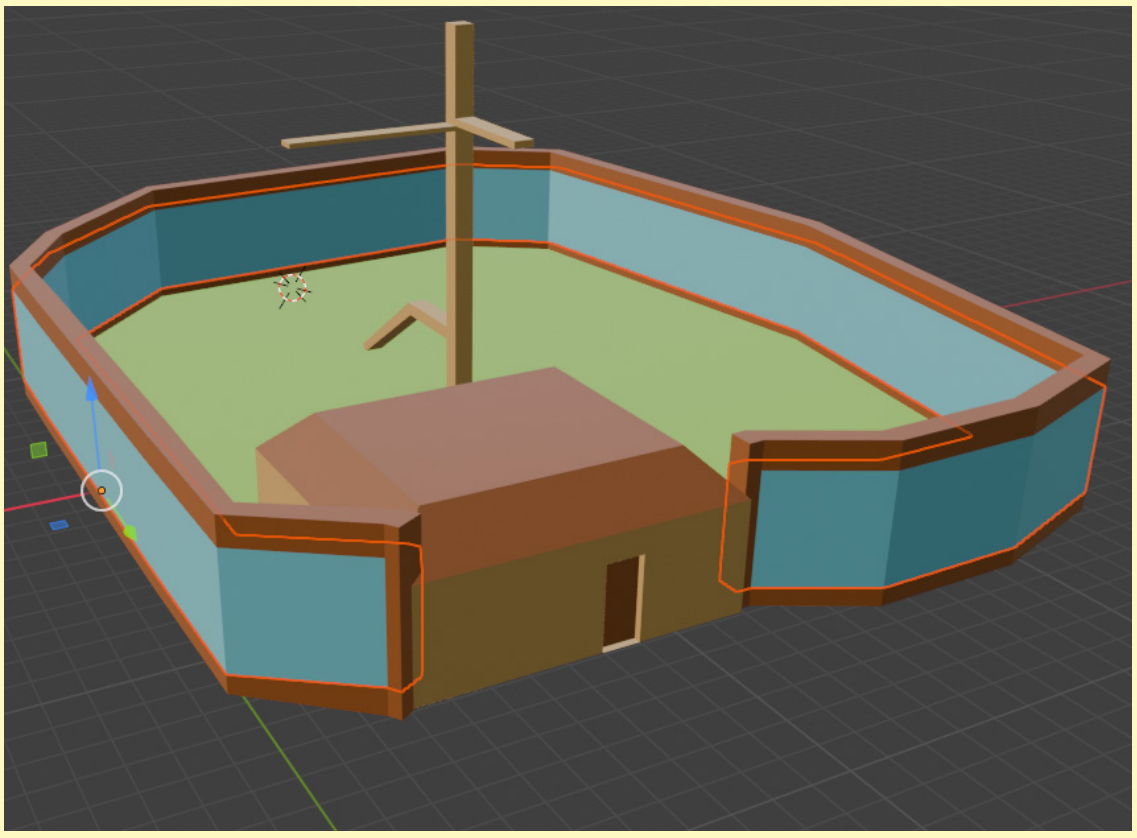


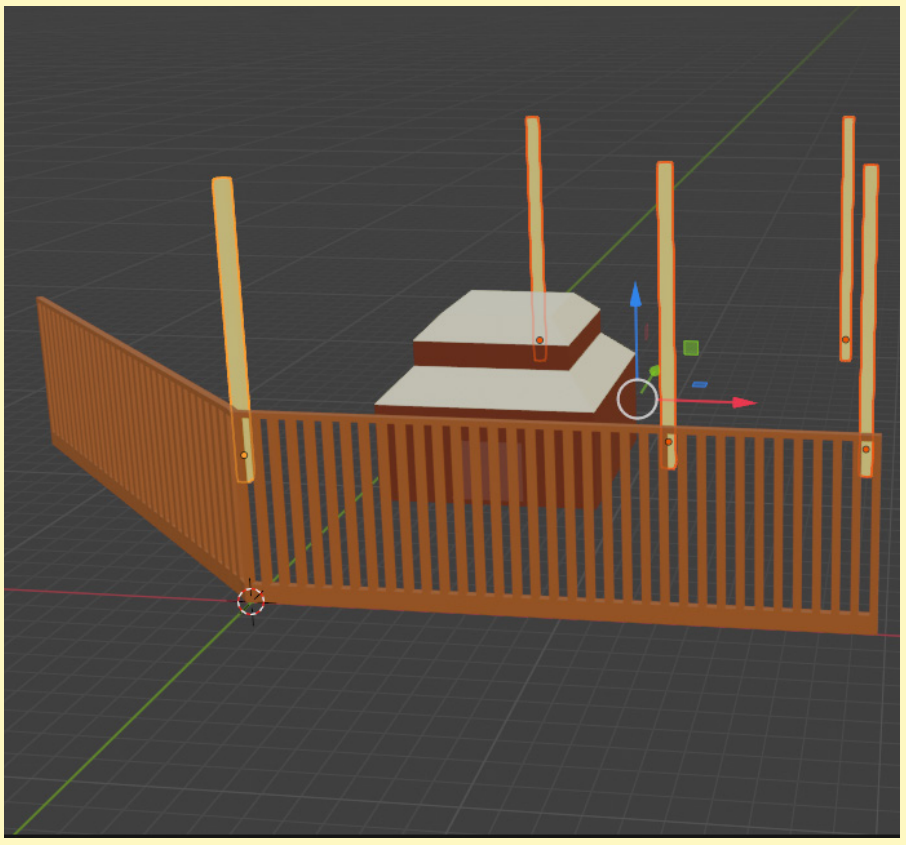
The buildings complement the other buildings and add a natural aesthetic that is also present in the zoo.

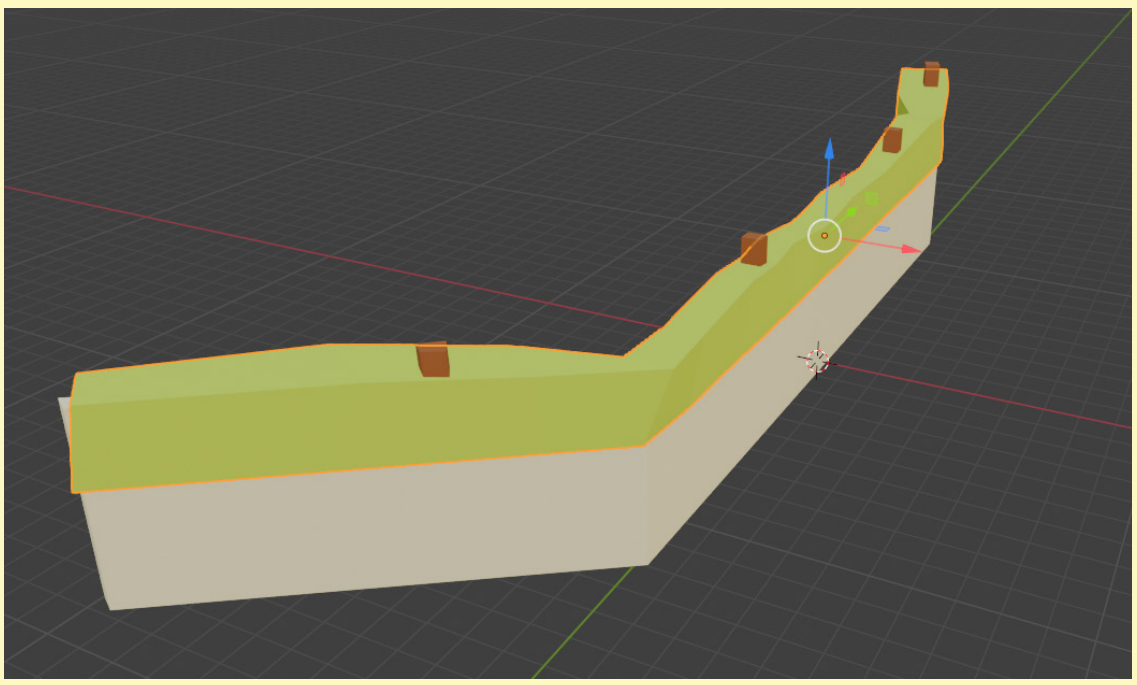
A form of continuity.

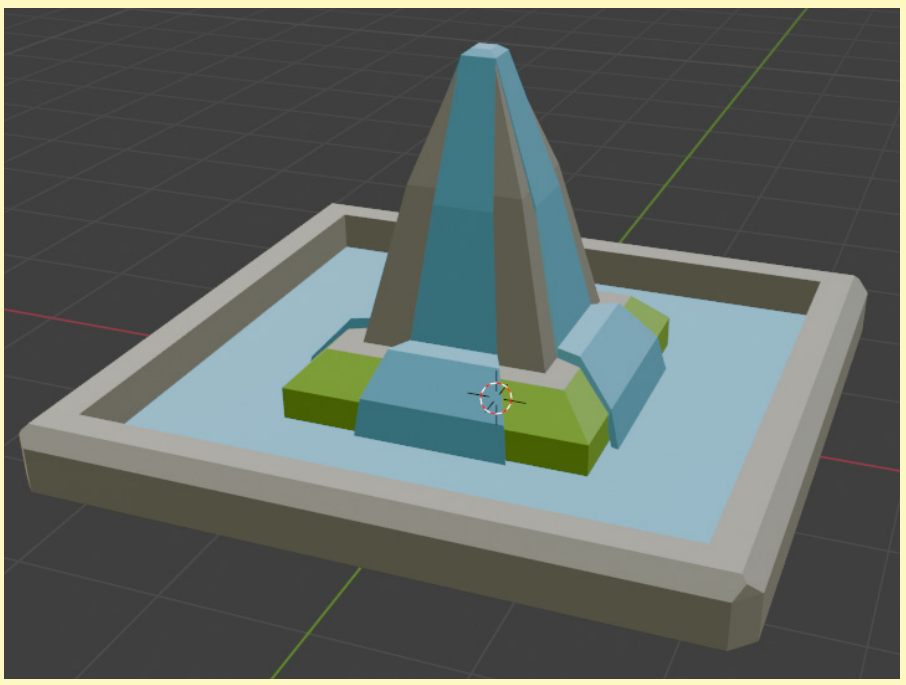
Sources research background buildings: page 76 - sources 70-73

Using the principles from the earlier done research in buildings to implement with other background stuff, but then for the zoo more like enclosures









I made different enclosures that would fill up the background, in addition to a fountain.

The Zoo was mostly filled up with props and foliage like trees and plants, but there were still major empty spaces.

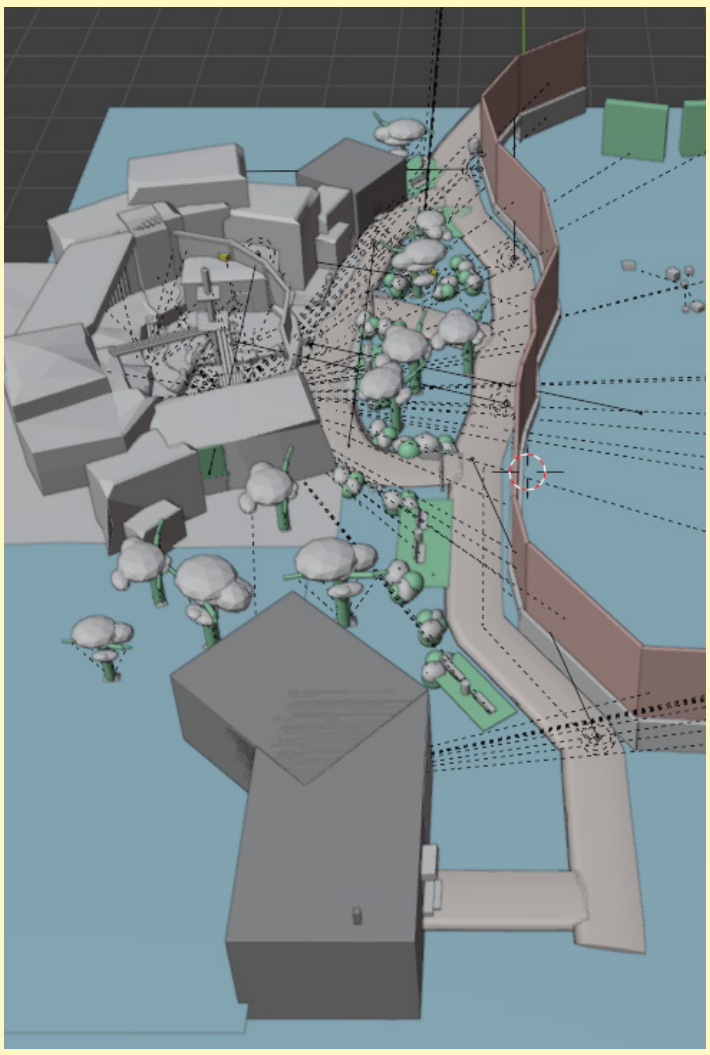
If you look at the majority of the zoo, you can see that there are mostly a variety of different animals. It would be weird to have a zoo that only has an enclosure for the red panda's en panda's. With this idea, I made filler enclosures to give the zoo more animals.

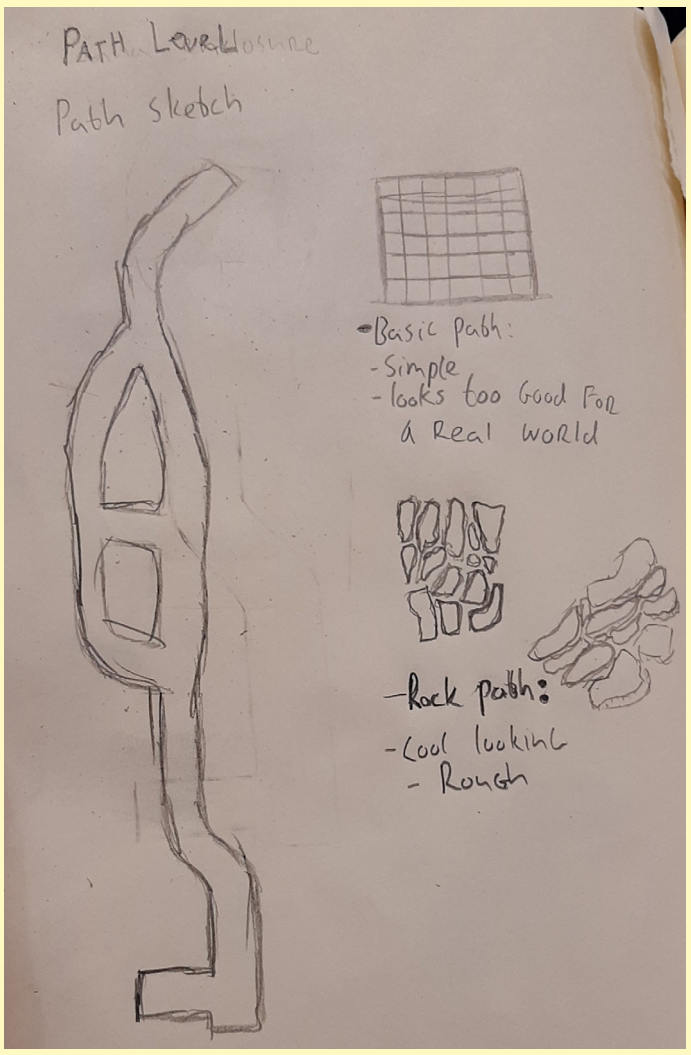
The green wall was supposed to be an enclosure, but during a talk with game design, we saw that it would be usable just as a wall for the zoo.

The enclosures use basic shapes and are not highly detailed because that would add unnecessary storage, and they also needs to be rendered.

Continue the work on the path

Making art and work on the Path level between Ali's enclosure and the Panda enclosure. Now with the layout, I have a better idea of how the road will take shape.

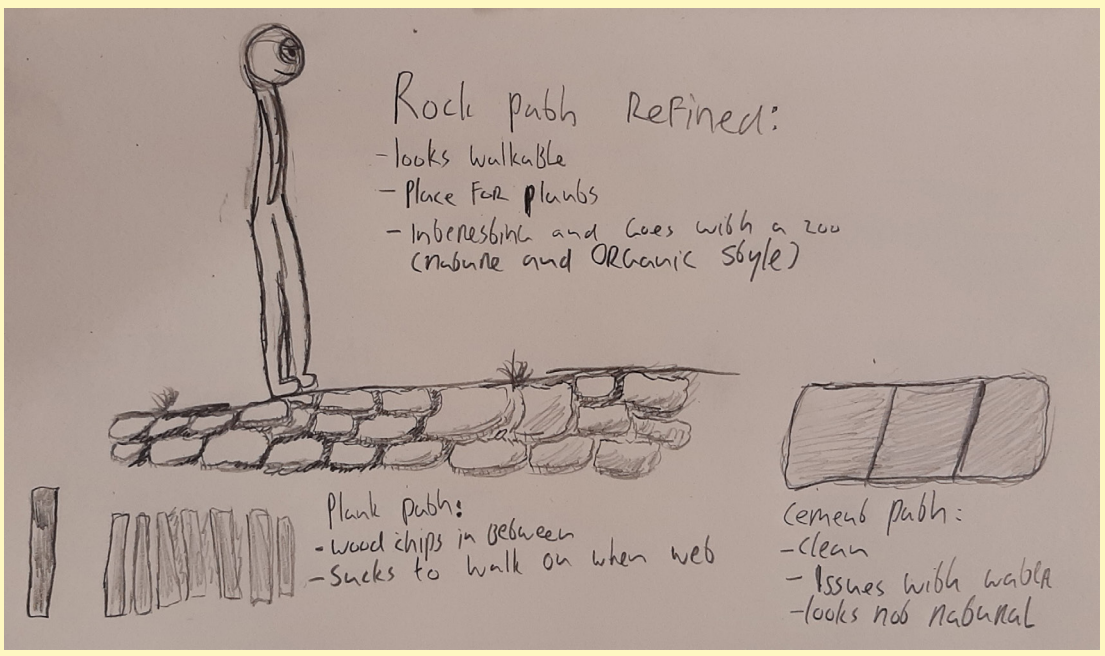




Getting the layout of the path and making sketches to improve on it.

With a basic layout, I created an iteration of what type of path it could be.

One thing that I quickly noticed were the junctions. This could be tricky to make with things like rocks intersecting or a texture that has a weird continuation.

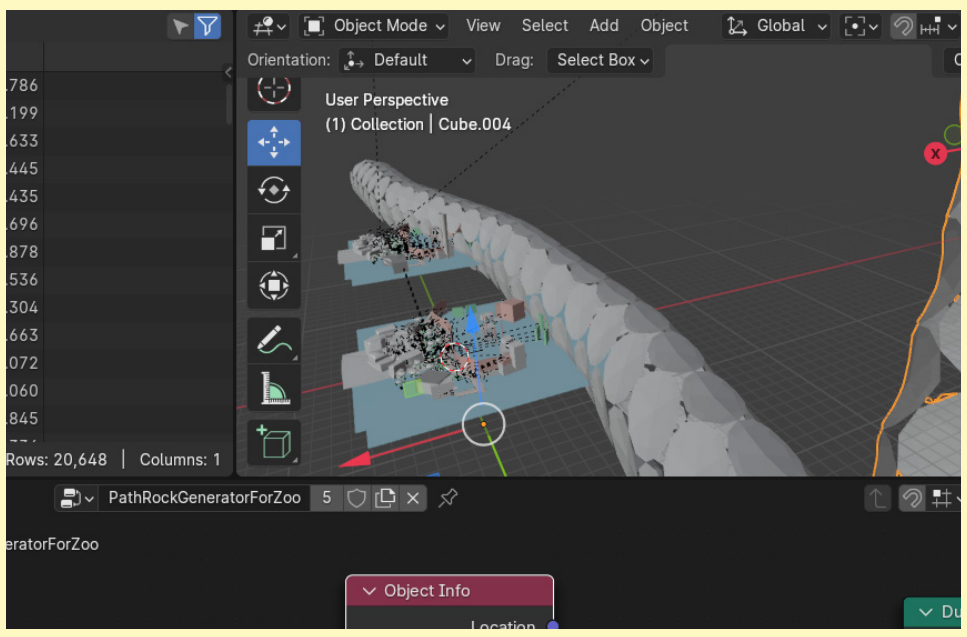


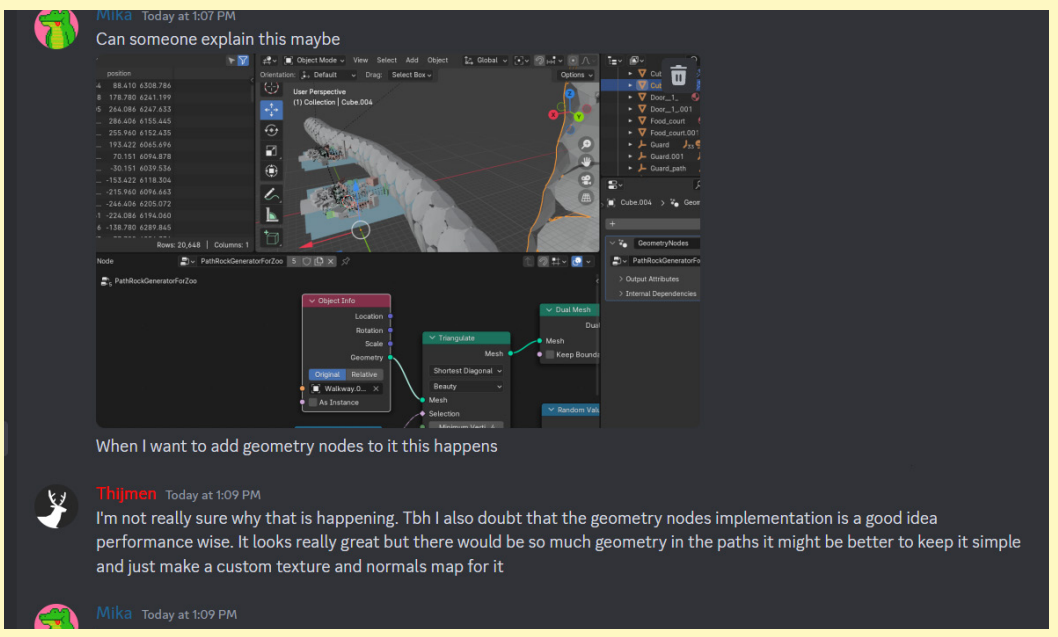
I had ideas for a rock path, a plank path, and a concrete path at the beginning.

Every style has its benefits and drawbacks.

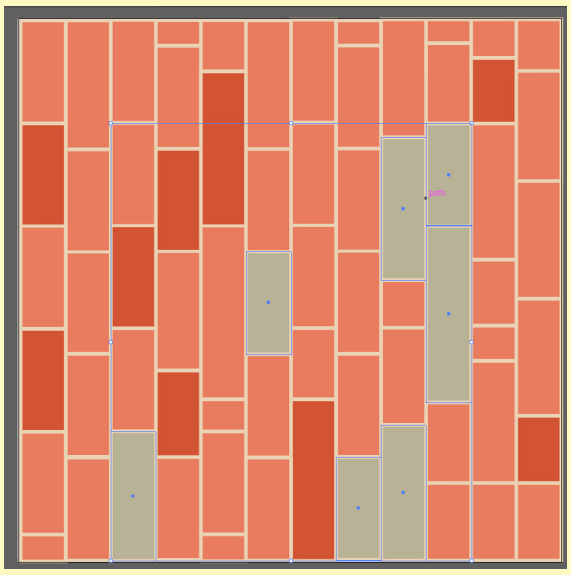
A rock path was the first thing that I thought was cool in the zoo.
It comes across as natural with the natural elements of the rock itself. You could add plants between them and make it even more natural.

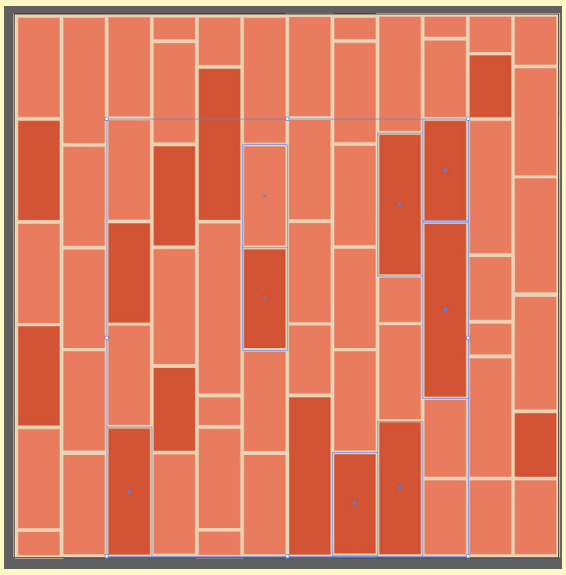
The only drawback I had was the modeling or texturing itself.





After talking we leave the geometry nodes. There were issues with the game design mesh and couldn't find the issue in time, also the amount polys would as mentioned earlier be a problem. So I went further with researching textures.



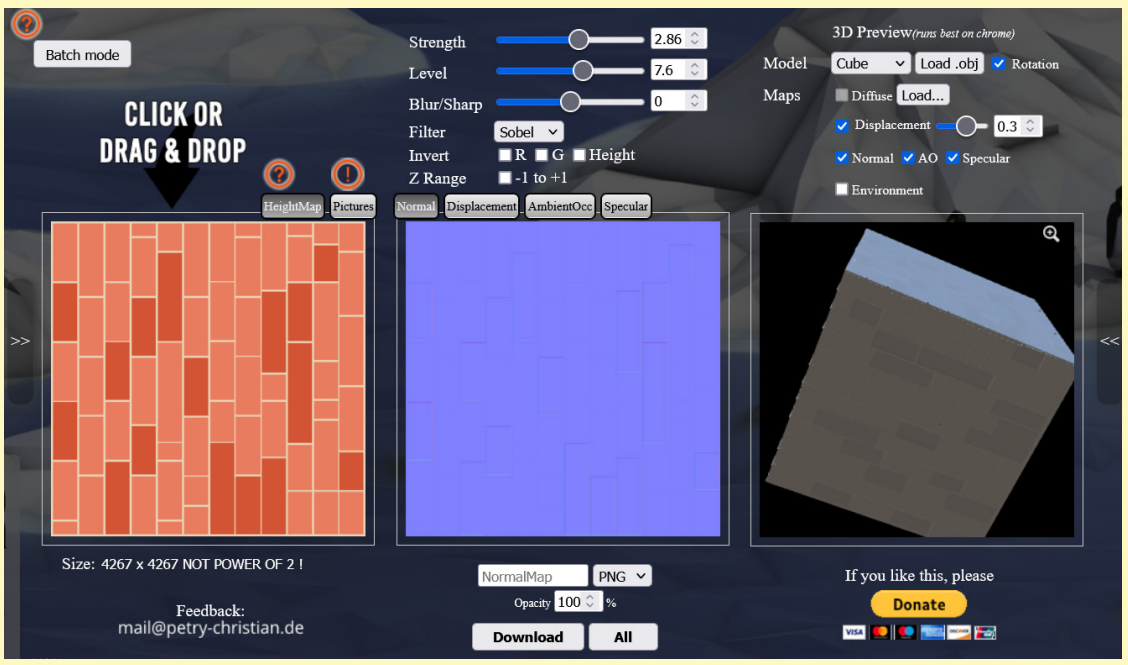


Instead of using geometry nodes, I made textures using Illustrator and a normal map generator.

The textures are in the style of the color_palette so that the path merges with the world. I asked for help from the 2D artist that has the expertise with the used software.

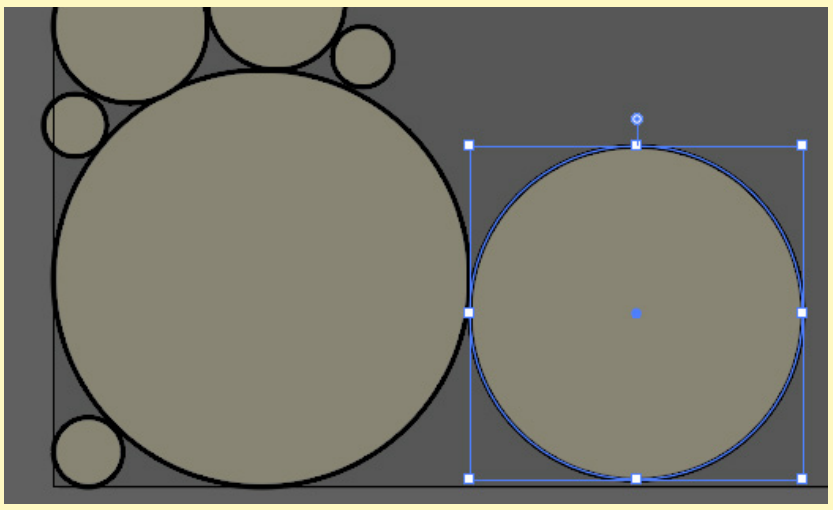
I started off with the idea of a path made of tiles.

In the beginning, the tiles looked very clean, but with the use of the color palette, I made some a bit darker, which worked pretty well.



After I was done with the texture, I went to a website to generate a normal map.

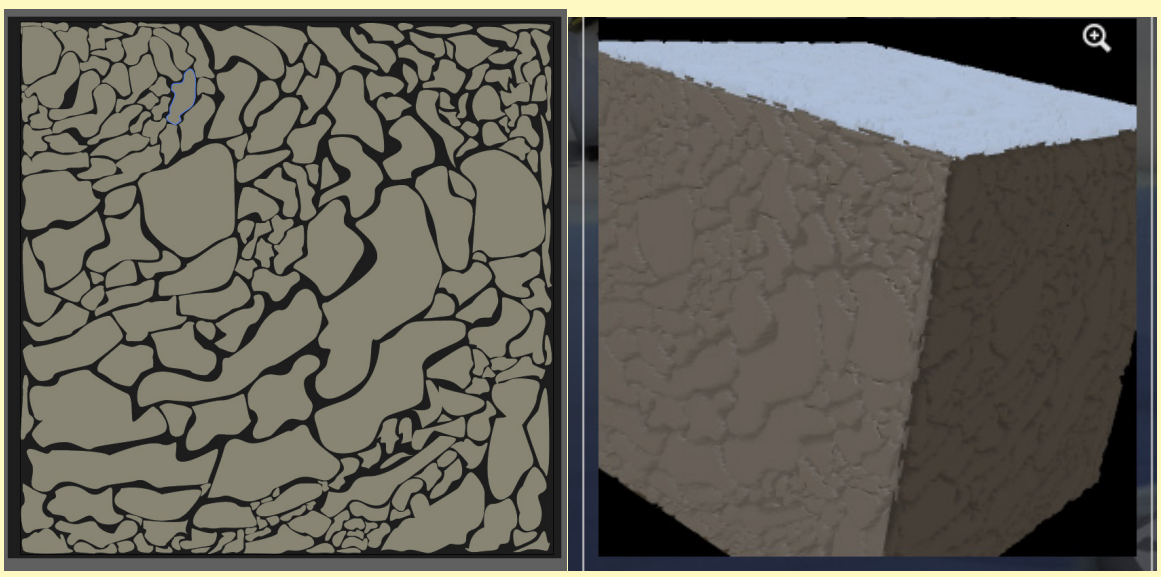
You can create normal maps using Blender, but the UI of this website is fast and nice to work with.



After a meeting I made an iteration that instead of using bricks it would be pebbles.

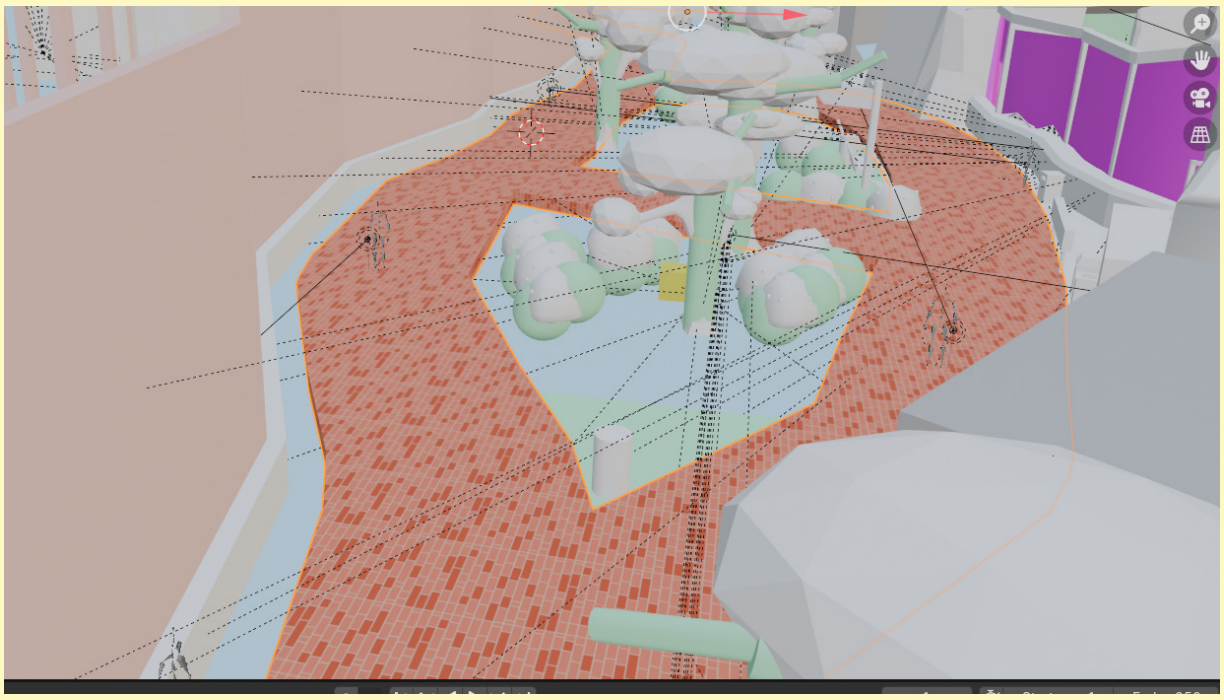
The first version was just small circles that would be pebbles but working on it, it would look pretty bad because it's too far of the art style. It would distract while the path should just be something that blends with the world.

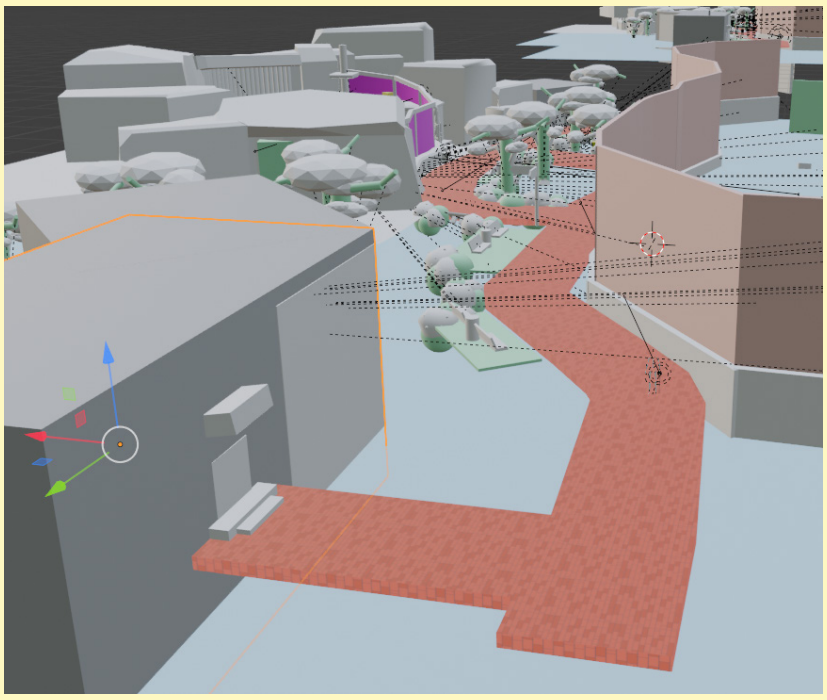
With that I skipped it and worked on more realistic pebbles that would come in different sizes.

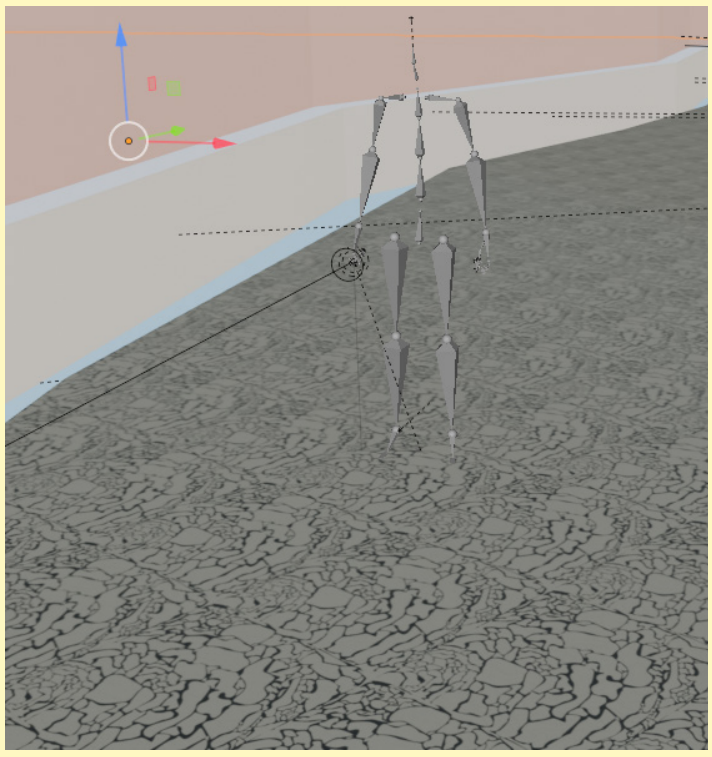


The normal map looked really cool with details put into it.

Sources Normal map generator: page 77 - source 74





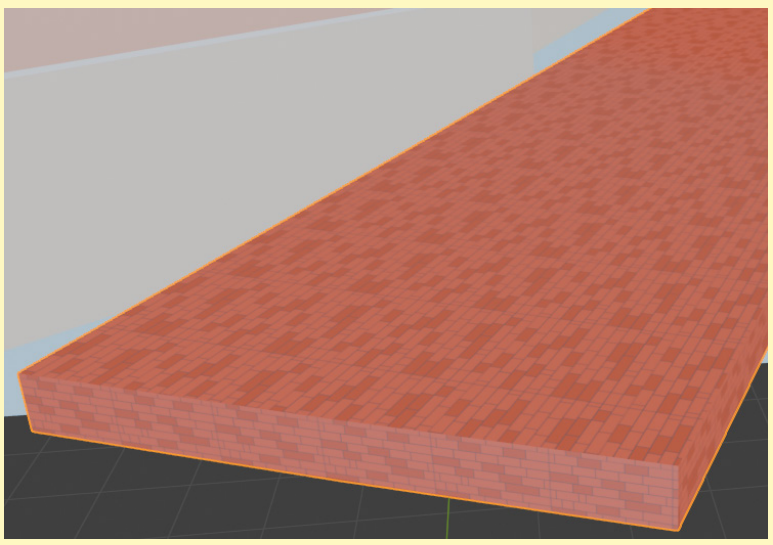


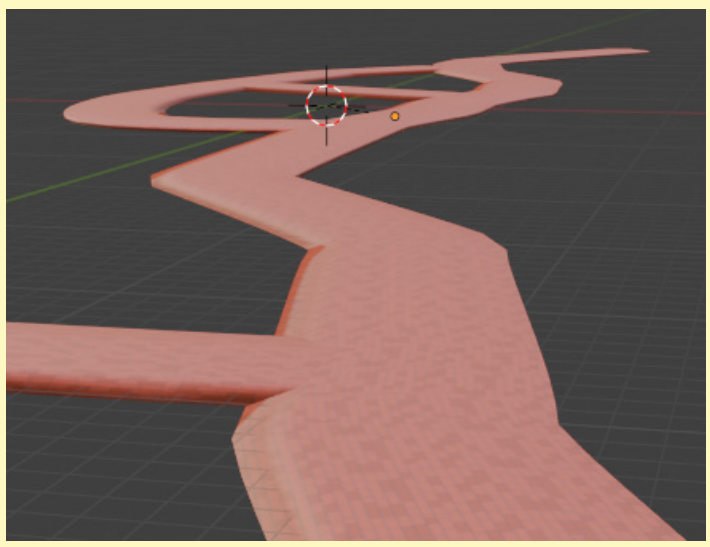
Implementing the textures was pretty easy to do.

The only thing that had to be done was scaling and fixing some of the UV's, or else Some tiles were distorted or of the wrong size.

One issue with the pebble path, was making it seamless.

On a piece of artwork, I could just place rocks, but with textures, it's way harder because you keep repeating the same thing.





After talk with other art again we went with the brick path.

The path looked more clean and would make a better contrast with the nature of the map.

The pebble had the organic look and felt more natural but in the end the brick ground looked better. Also the pebble

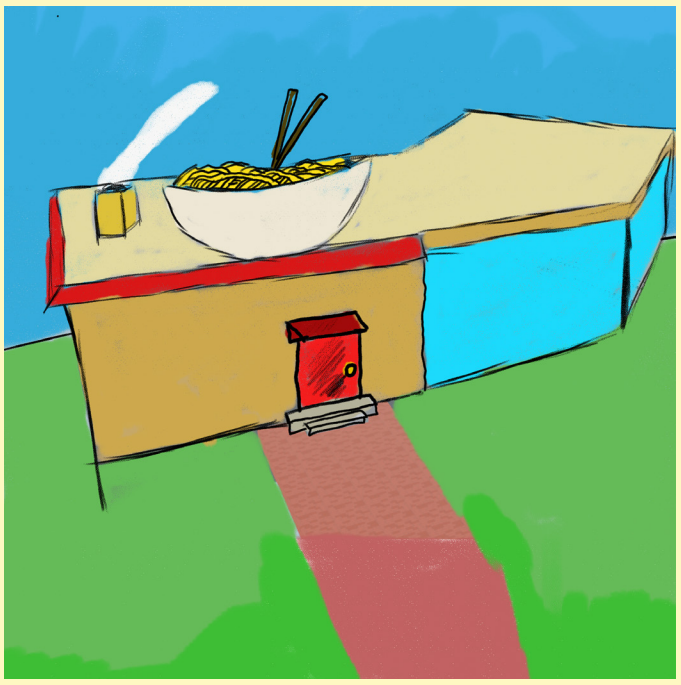
After talk with other art again we went with the brick path.

The path looked more clean and wouldmake a better contrast with the nature of the map.

The pebble had the organic look and felt more natural but in the end the brick ground looked better.

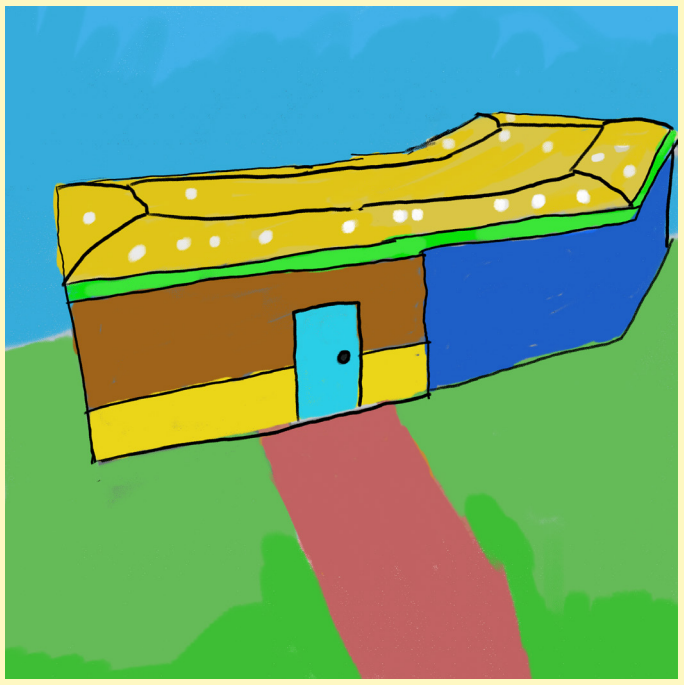
I was working on a restaurant for in the zoo where people could go for food and rest

Drawing over a blockout of design to give different concepts to vote for.
The majority of people were positive about the Asian theme.



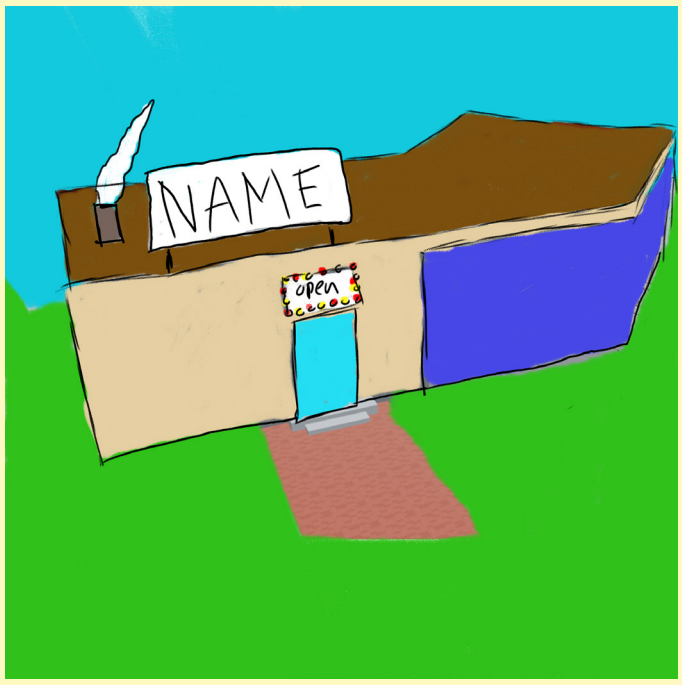
Asian theme:

- Logical for the surrounding
- Cool design
- Can be distractful and seem like a really important place
- It can also be not that distractful if it blends well with the other Asian surroundings.



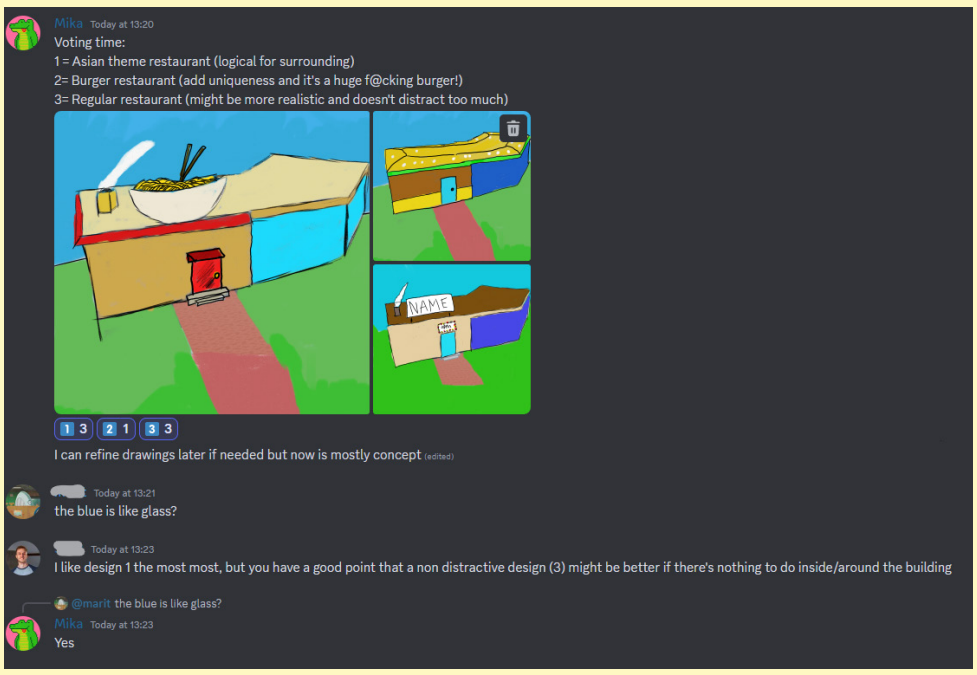
Burger theme:

- A giant burger looks cool
- Some thematic contrast compared to the Asian theme



Basic theme:

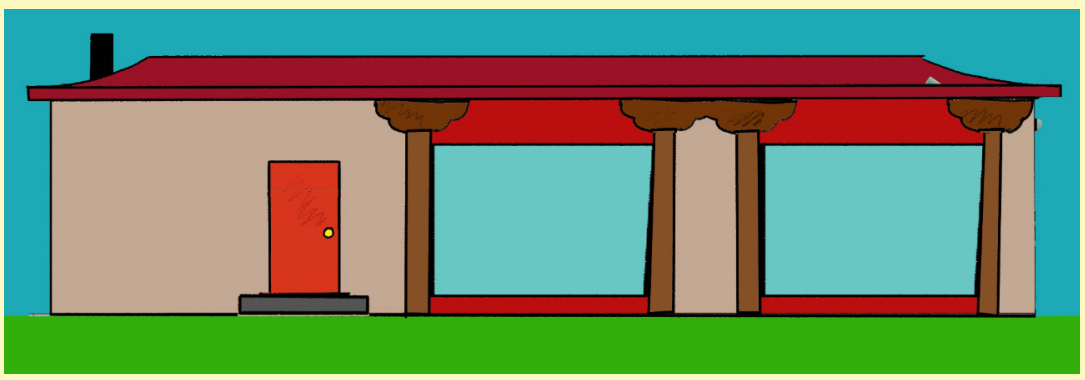
- Not that distractfull
- Does what it's supposed to be

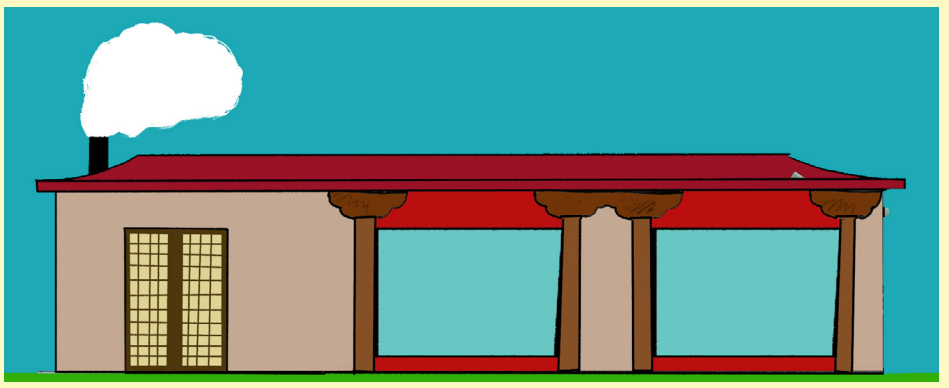


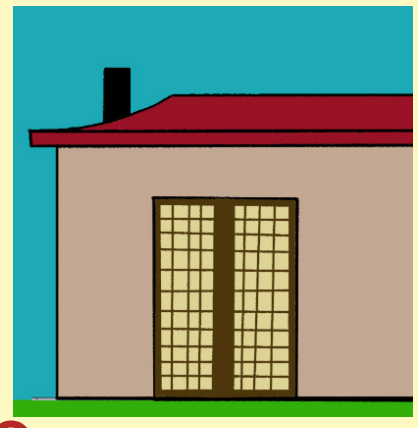
With the voting came also good feedback.

To continue working on the restaurant, I kept making changes and ask people for feedback.

This also showed me the real importance of drawing first before making a 3D model.

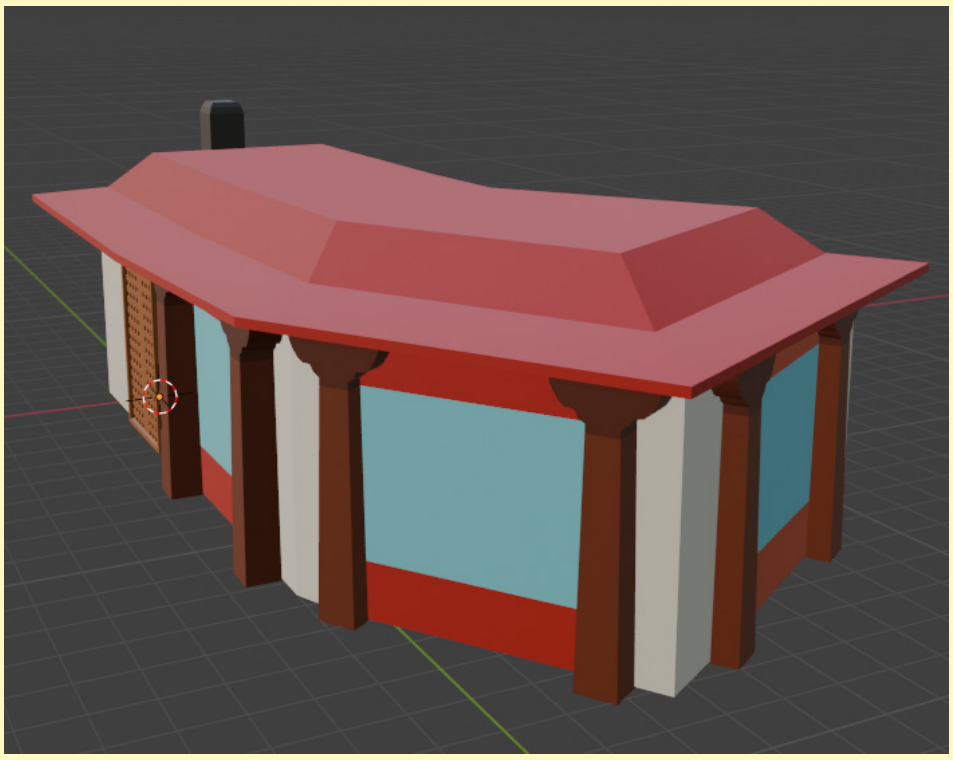


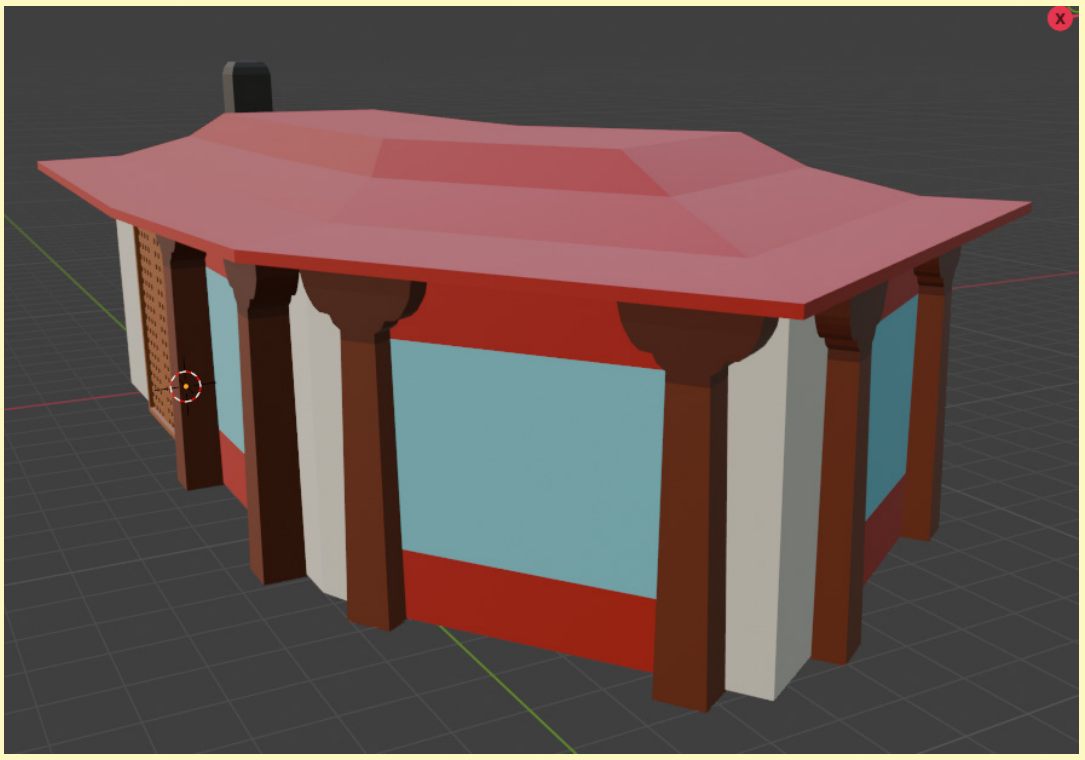


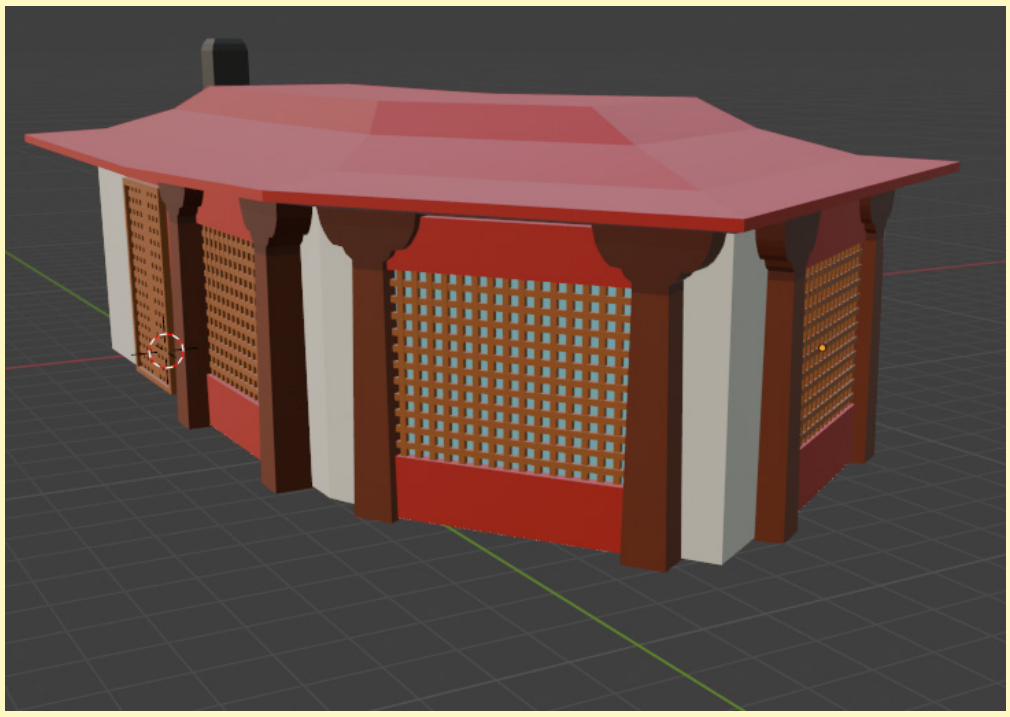


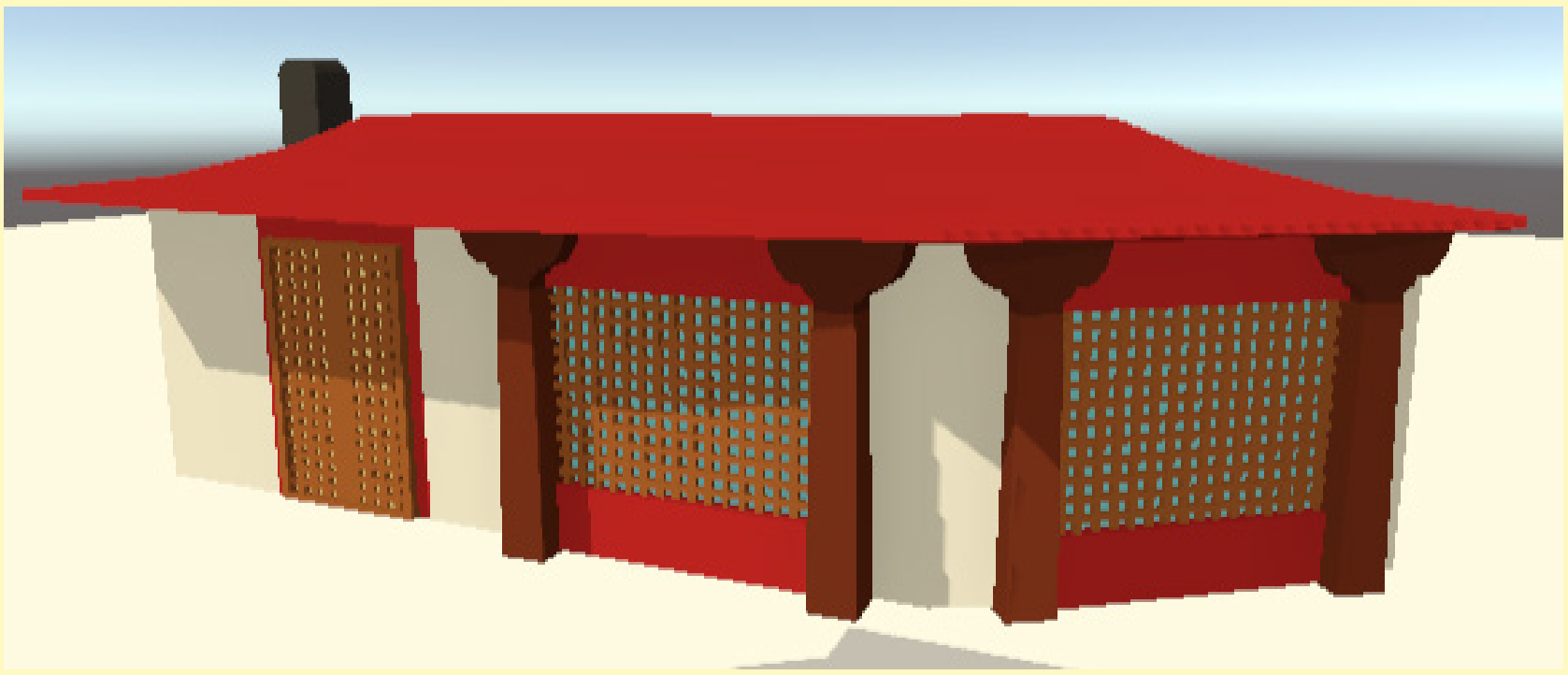
Making an iteration on the Asian theme.
Now it blends more with the environment and is not too distractful.

The restaurant should look nice, but it is not something the player would be highly interested in.





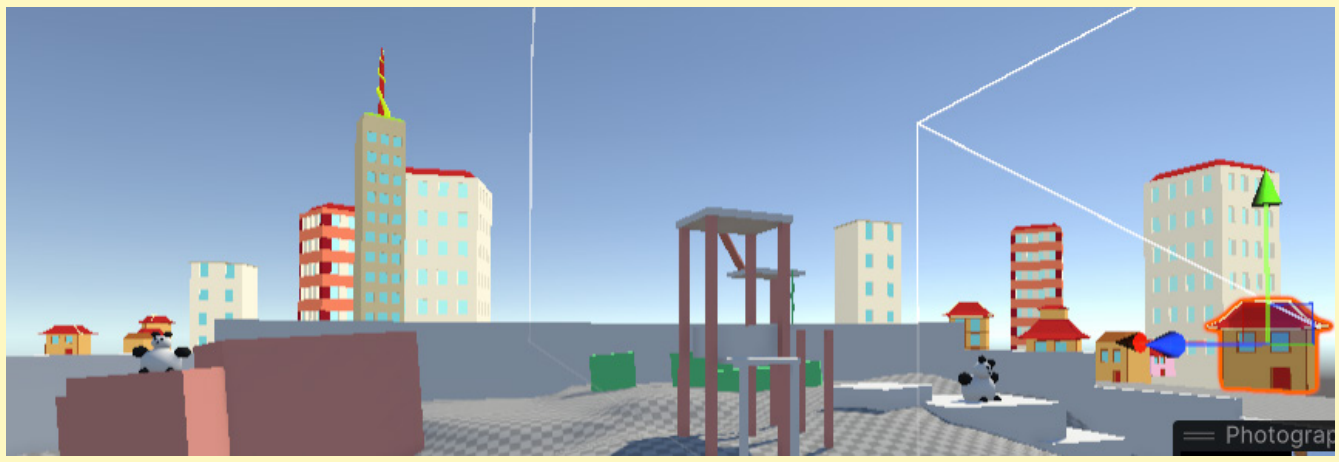




After feedback, I also gave the windows also a new style, which makes them way better and more detailed.

In the end, what was left was an Asian-themed restaurant that would blend in with the zoo.

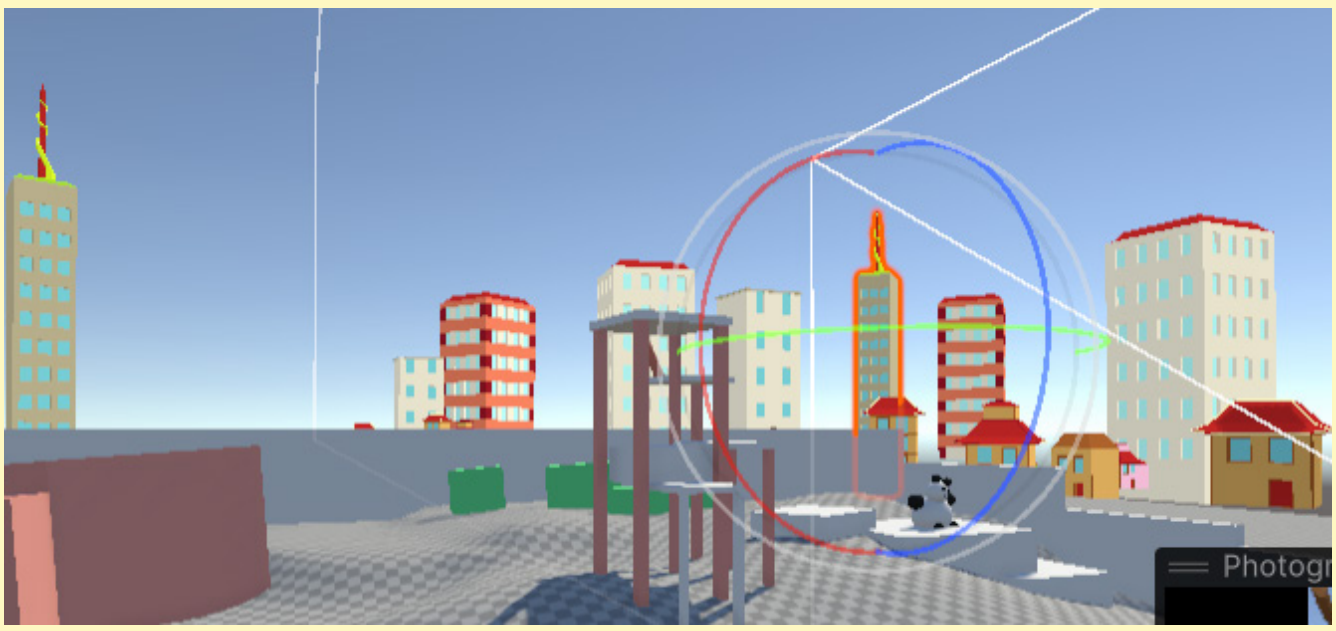
Working on the background of the zoo to share with design



Using a scene in Unity of the Zoo, I created a background scene to inspire the gameplay for a further background enhancement.

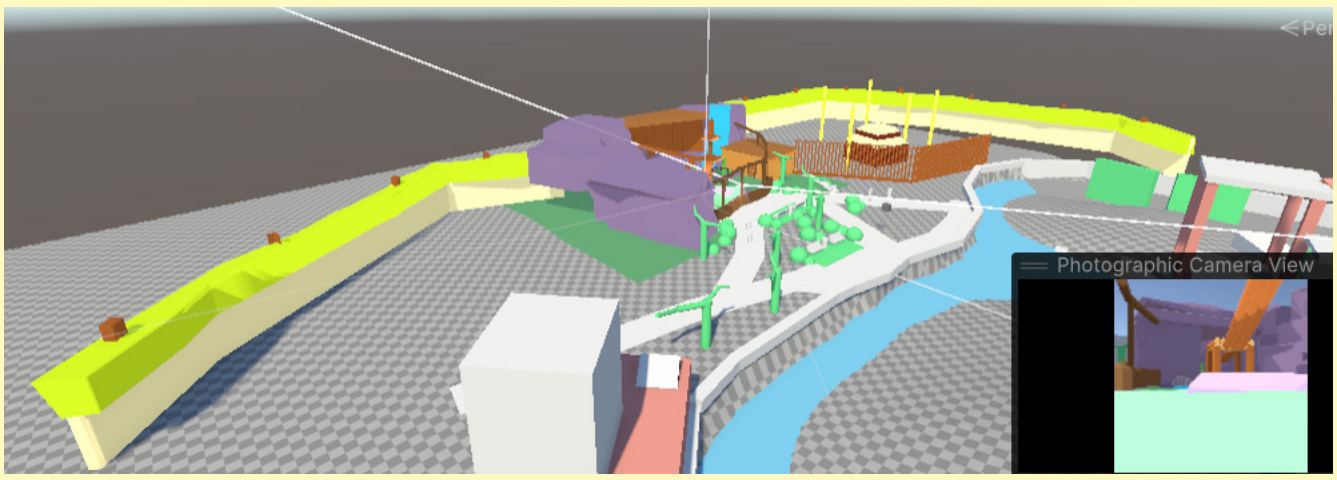
The idea is to create a city-like background that gives the impression that the zoo could be located. The zoo is near a city.

I also used the Asian-themed buildings that are mostly located in the zoo itself for the Asian-themed part.

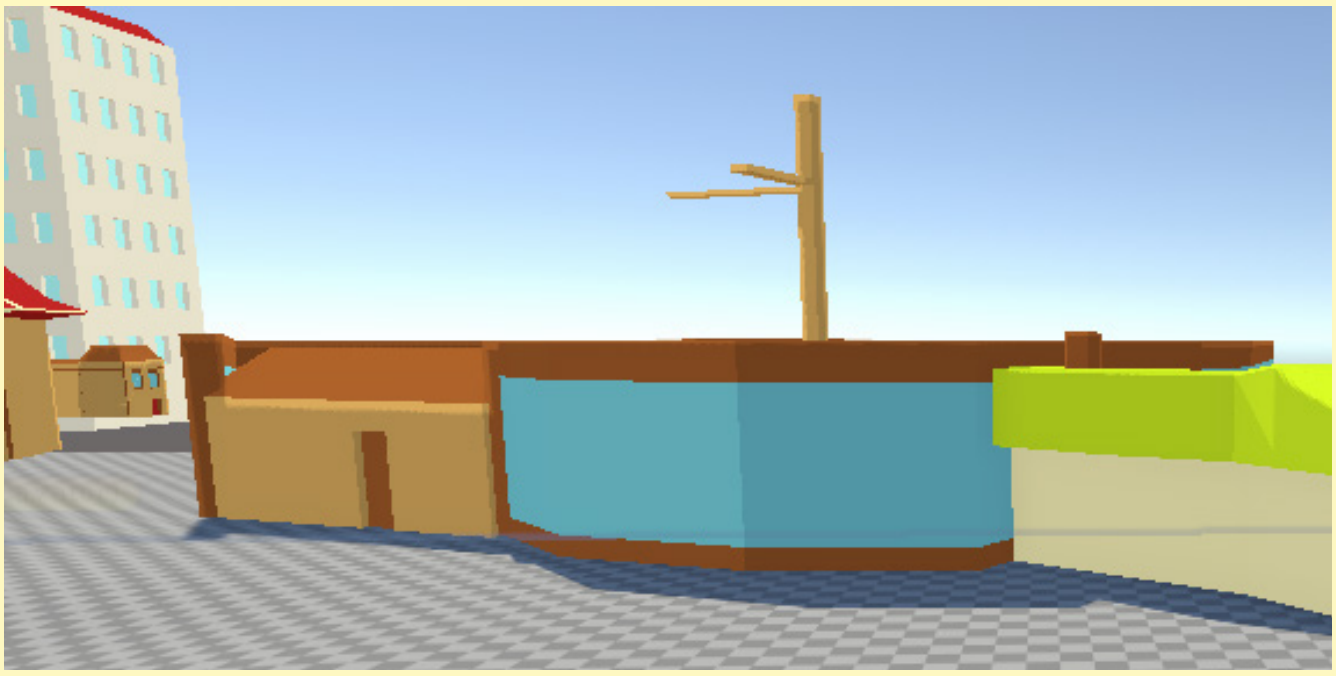


Looking at the background with the red, it looks very unified and interesting to have a world in the background over a generalized style.

Here, I came up with the idea to use the walls for the zoo background instead of a wall for an enclosure somewhere. The idea of the wall would blend in with my research on solarpunk, where modern architecture is combined with nature.



During the process, I looked at it from the perspective of Ali to see what she would see. Since Ali is lower to the ground (even in third person), some buildings might not be seen in the background, while you can see it clearly when you are editing the background high from above.



I also filled up some walls with enclosures to make it unified and connected.

Research panda building

What is visible:
Simplistic but also organic shapes. Nature takes a big part with the buildings and to implement natural elements into it. One example is the wooden pallets that enhance the concrete.

After doing some research for the panda enclosure, I made a simple set of rules to work on the building. It's kind of like a tutorial. The idea behind the tutorial to make a building was simply to make a really basic model, which will then be enhanced with additional components.

Looking at the images, I saw basic shapes except the panda-shaped building, and then things would be changed, like adding wood to the foundation or having many glasses.

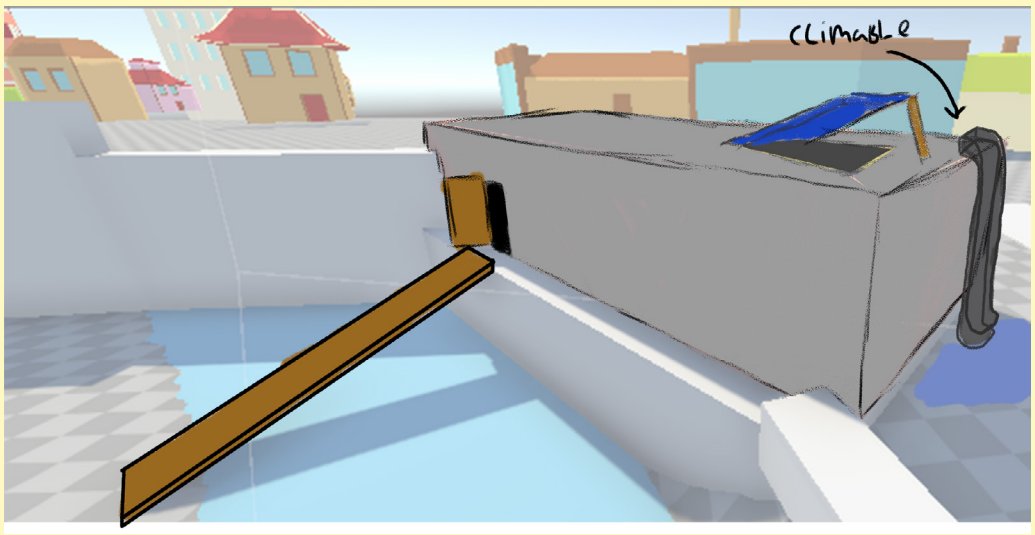
My own tutorial to making the building.

Step 1:
Make the most basic building ever.

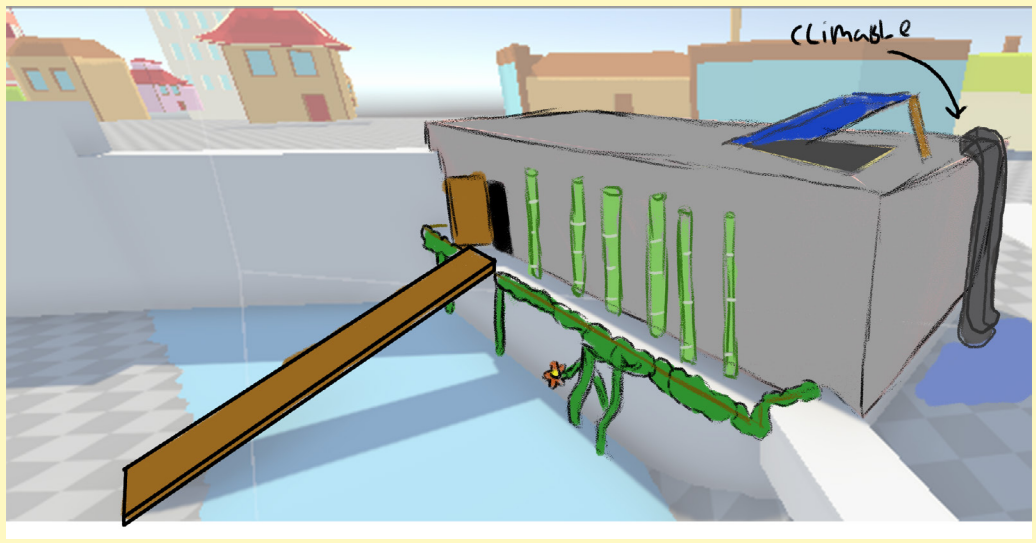
Step 2:
Look what could enhance it.

Sources research panda building: page 77 - sources 75-78

With the done research, my basic tutorial and the blockout of gameplay, I started drawing to come up with an idea for the building to work with



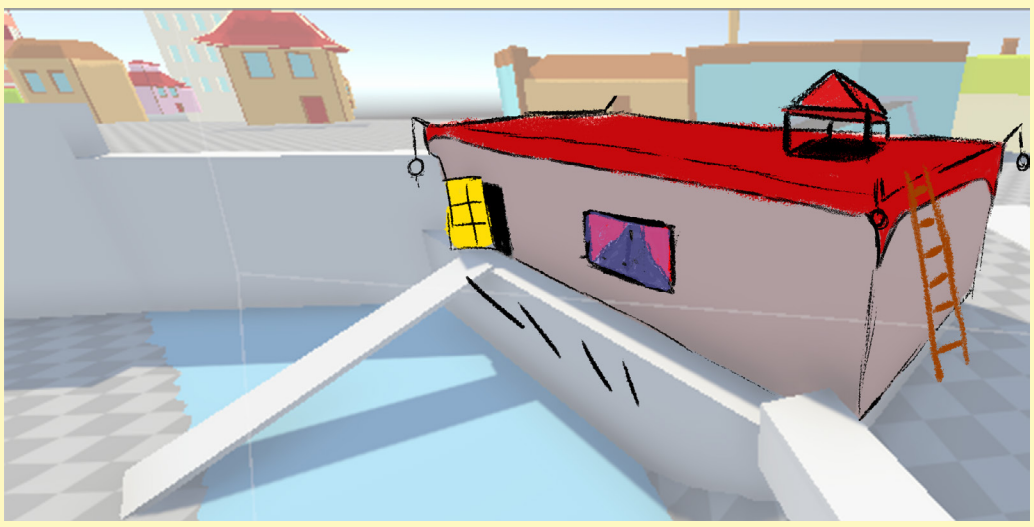
The first one was the most basic building that could be made with just a door and the core parts for gameplay.



With the basic thing done, I added plants to the scene that fills up the gray concrete.

To get rid of the concrete, I used the idea of one of the images and added wooden pillars in front of it.

This gets rid of the basic concrete, and by making the top a different bright color, the basic building now has more detail and looks interesting.



I made an iteration with the same principle, only sticked to the Asian theme.

Environment process (sprint 4)

About:

Sprint 4 was a pretty hectic but productive sprint. It was mostly creating the last things and finishing things off. This meant doing multiple tasks, like working on the Panda environment, while also making background enclosures and adding additional content.

Reflection sprint 4:

Sometimes I should've taken the lead earlier. With the Panda enclosure in the beginning, I relied too much on the game design team, while I also could have made some serious decisions about what I already had done and proven with the background buildings or with changing the rocks in Ali's enclosure all the way in sprint 1. In the end, I and others in the art team took a big part of the lead over the panda enclosure to have it finally finished before the end of sprint 4.

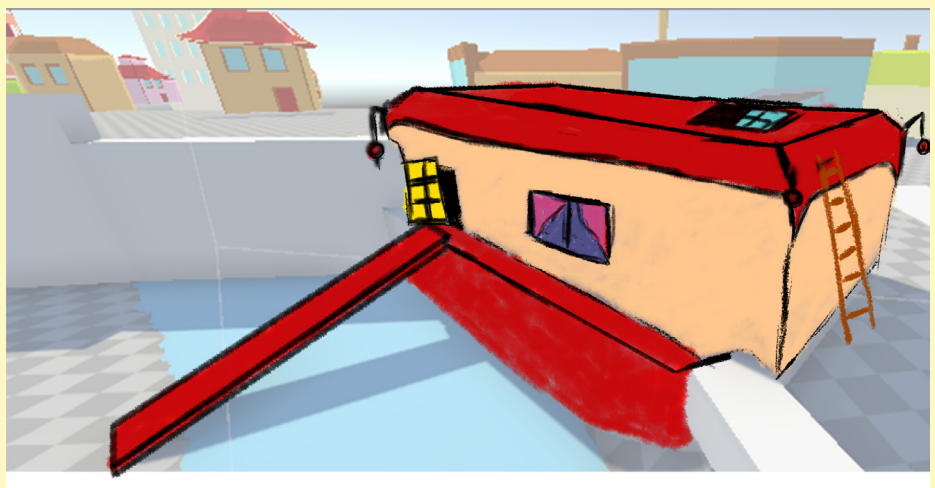
With this, I also saw that while making decisions through the whole course, I also made some decisions that changed the gameplay, which in a sense also gave me some gameplay roles.

Sometimes I try too hard to finish something fast to fix it, but that can cause errors in the model, like with the topology.

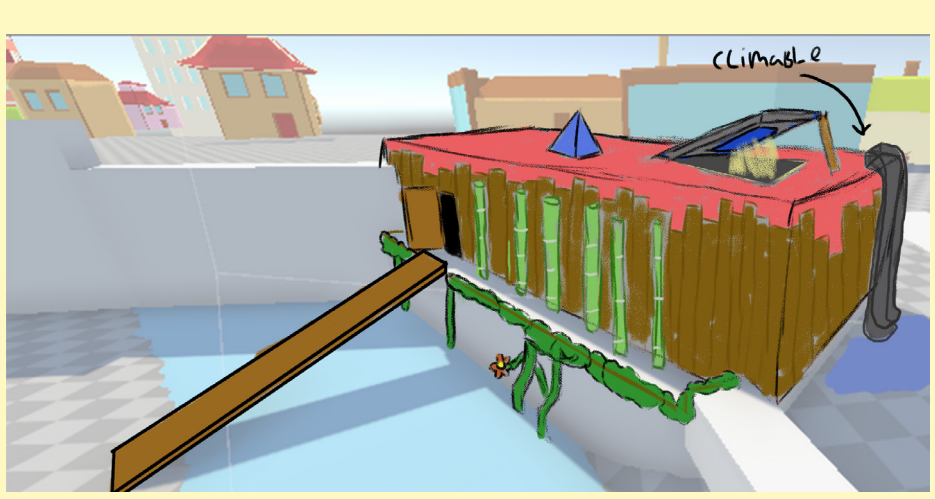
At the end of sprint 4, I found myself having learned way more than I expected. I learned to communicate ideas with others on the project team. Sometimes I didn't like sketching and found it useless. I found that with sketching and more advanced stuff, it really helps to have an idea that is simply to make, and you can make easy changes to it and share ideas with other members of the team.

Working on the panda environment

Drawing over a blockout of design to give different concepts to vote for.
The majority of people where positive over the Asian theme.

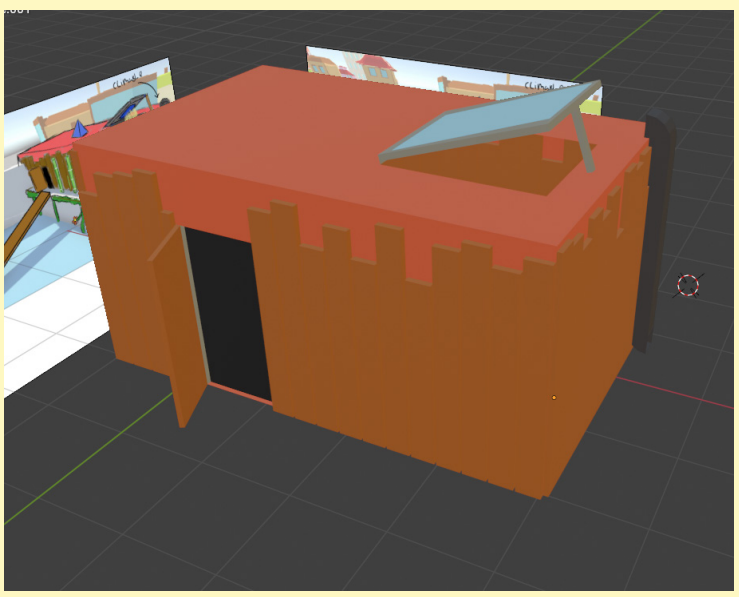


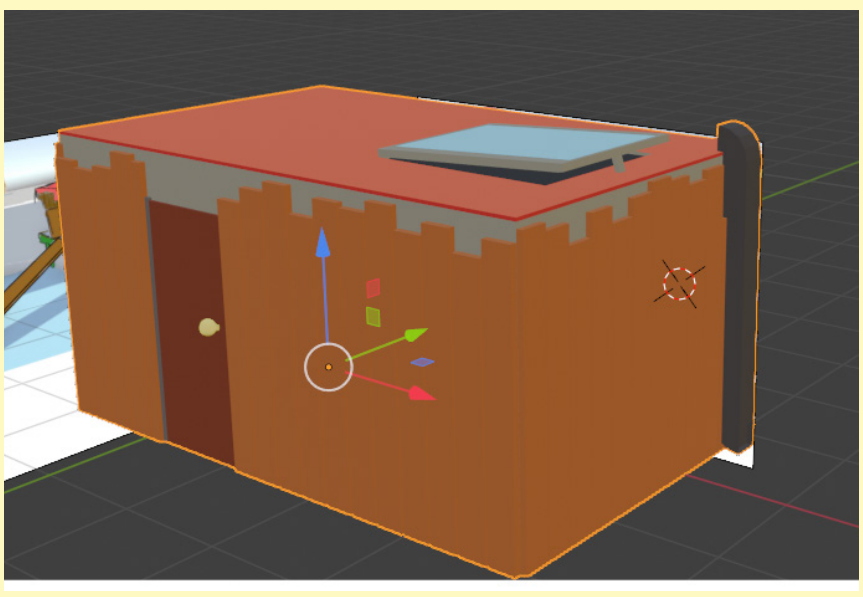
Makinhg one more iteration



I met with the design team, and they liked this one a lot.

Personally, I would also go with this one and make the personal choice to stick with my research. It adds uniqueness to the panda environment and makes the building look special. You want the player to go to this place, making it look like the other buildings might get ignored.





They're closing it off more after talking with design, and they don't want Ali to enter it.

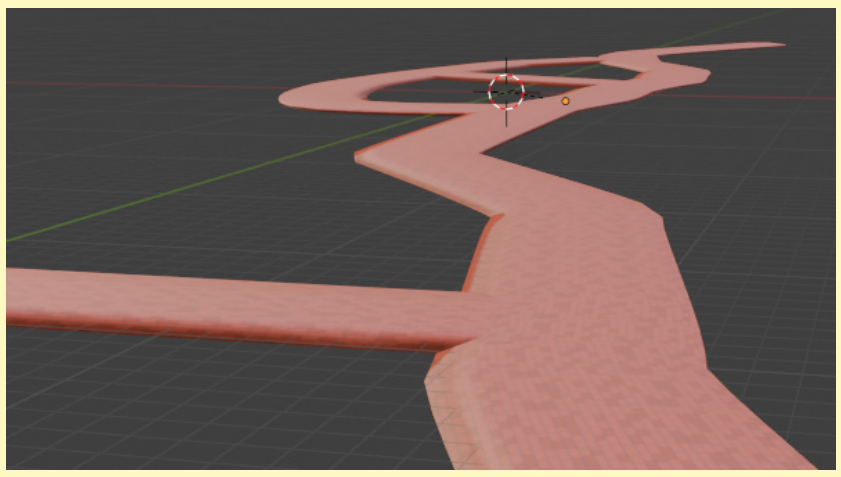
The building has concrete elements but is walled off to make it a bit more interesting. The building is not too distractive, but it still needs some attention. On the side, there is a big drain that looks climbable. It is also targeted at the spot Ali should walk to, so it can pique the interest of the player.

Making a decision for the road.

After talking with other artists again, we went with the brick path.

The path looked more clean and would make a better contrast with the nature of the map.

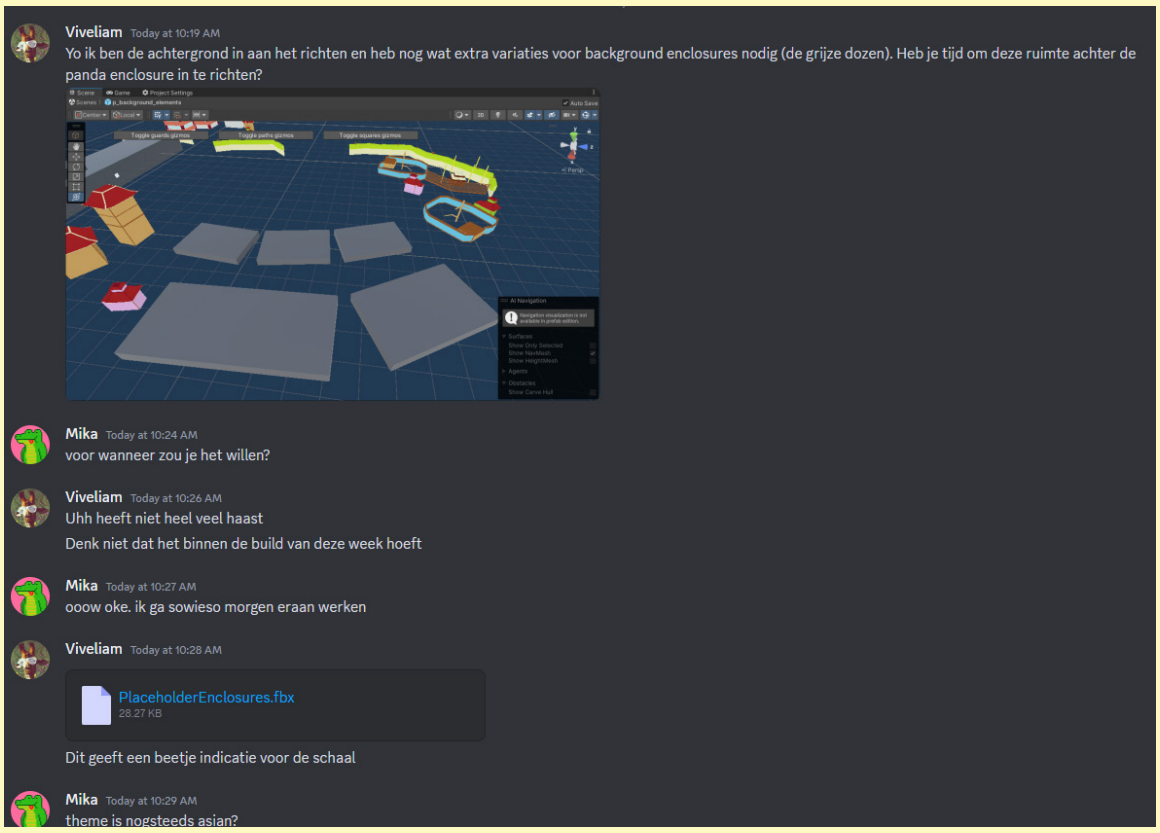
The pebble had an organic look and felt more natural, but in the end, the brick ground looked better.

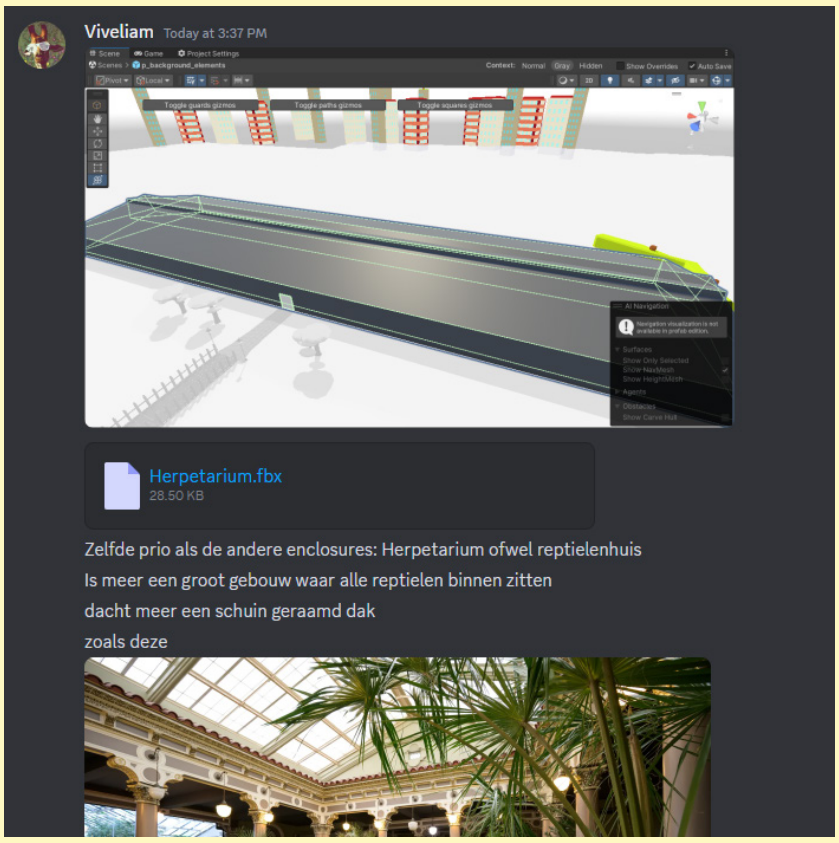


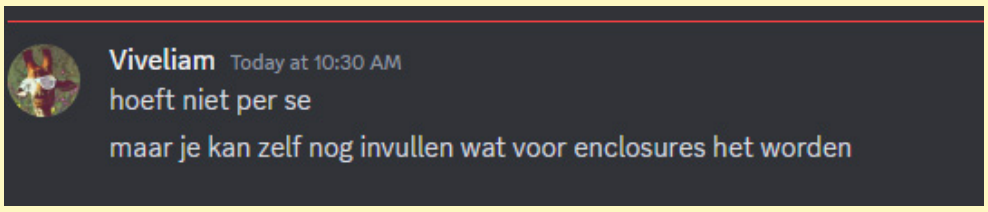
Design had issues with the ground so I used a new one with the texture.

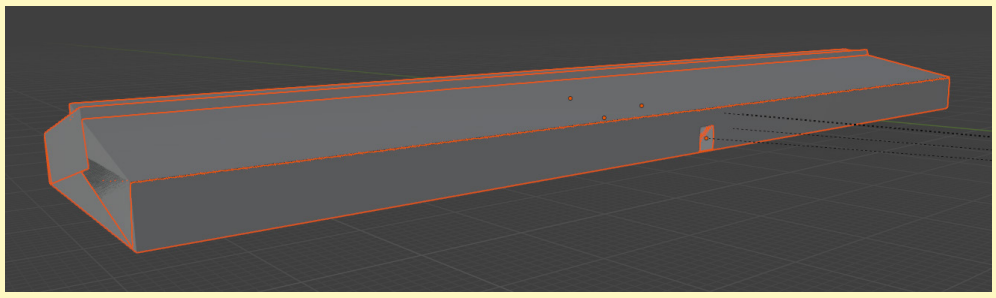
Continue with the background

After a talk with game design, I got the task of making my own enclosures that fill up empty space. They also asked for a herpetarium.

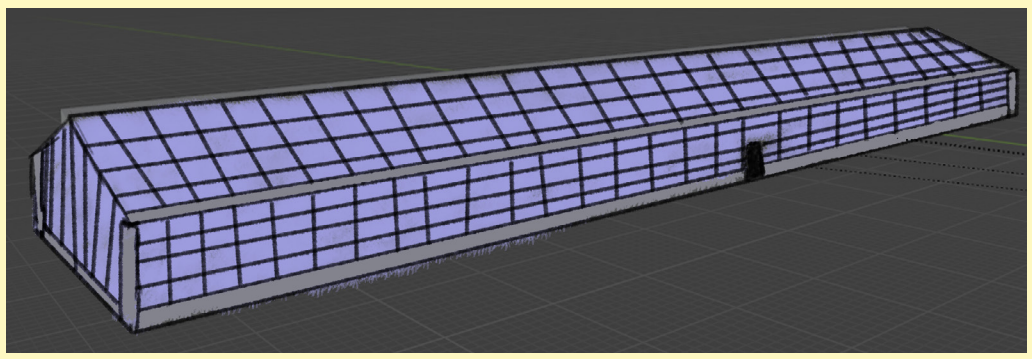


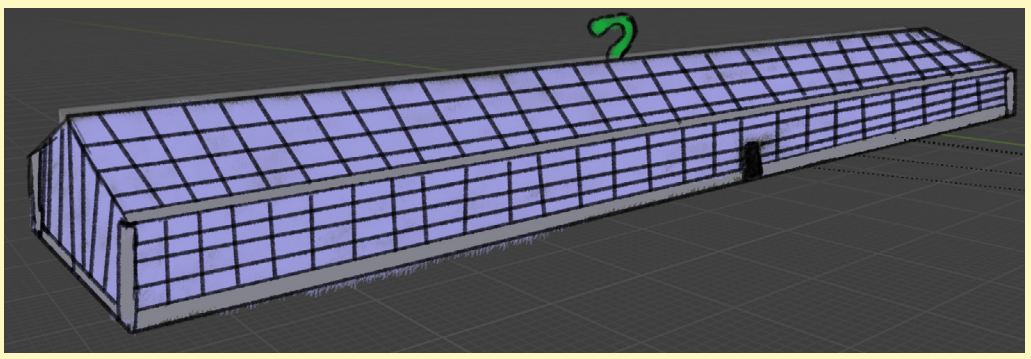




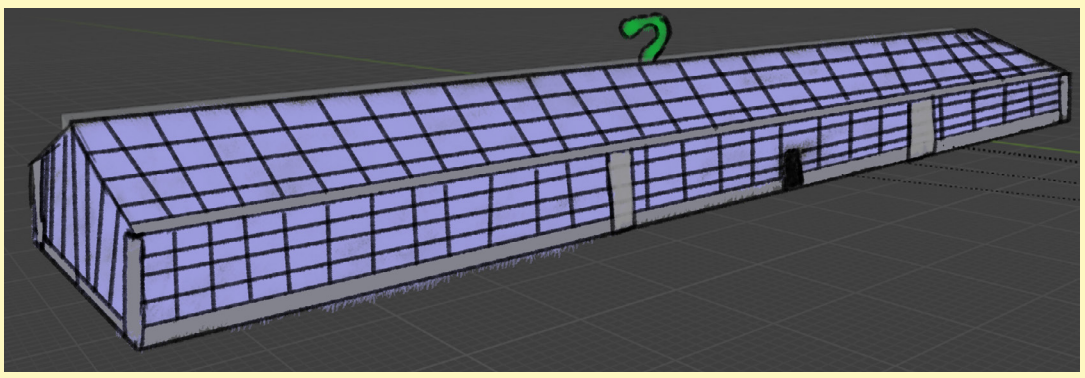


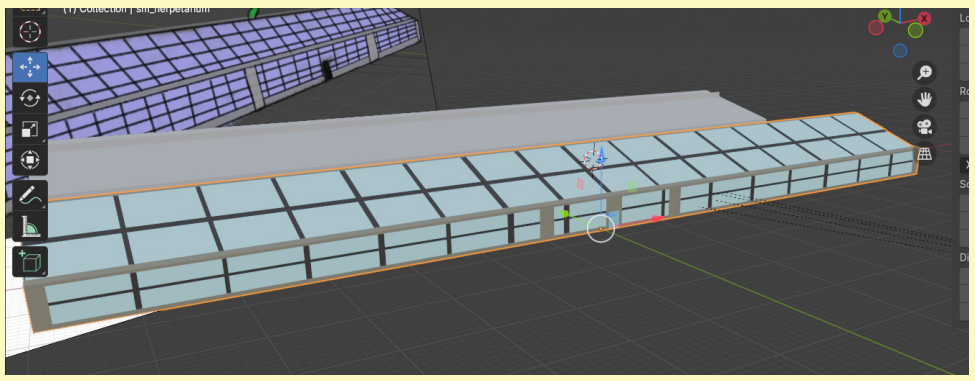
With the basic blockout and some inspiration from the game design team, I started drawing my ideas.
I wanted the building to be filled with glass so that natural light would take over the inside.





I got feedback to add more supportive pillars.

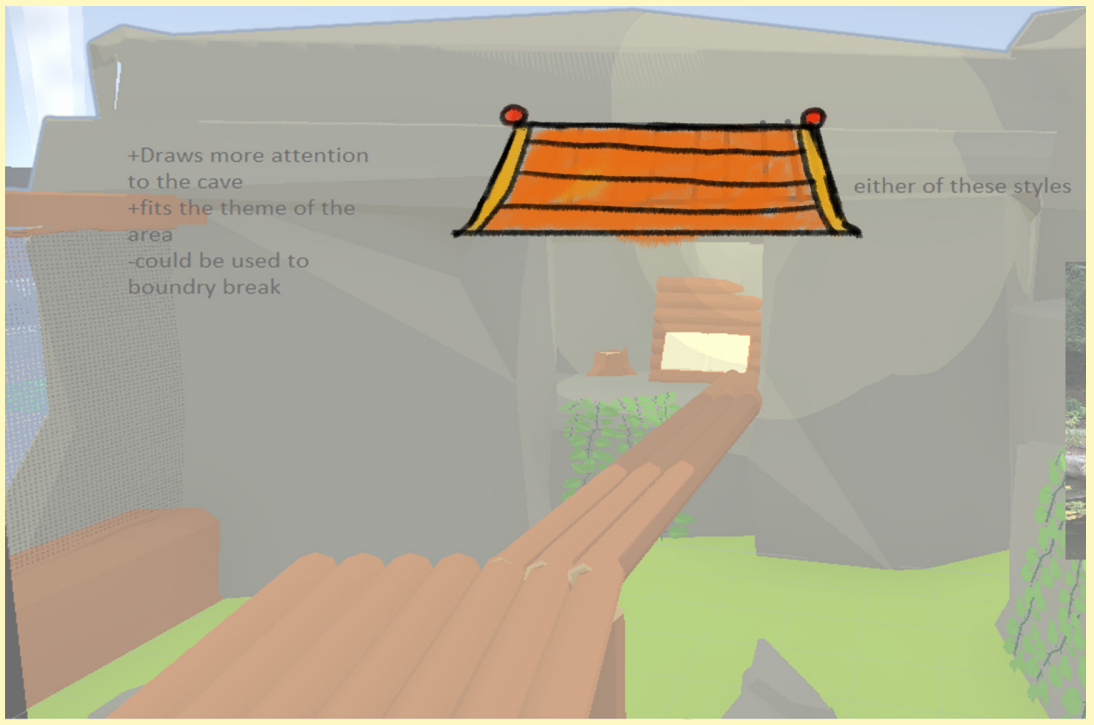


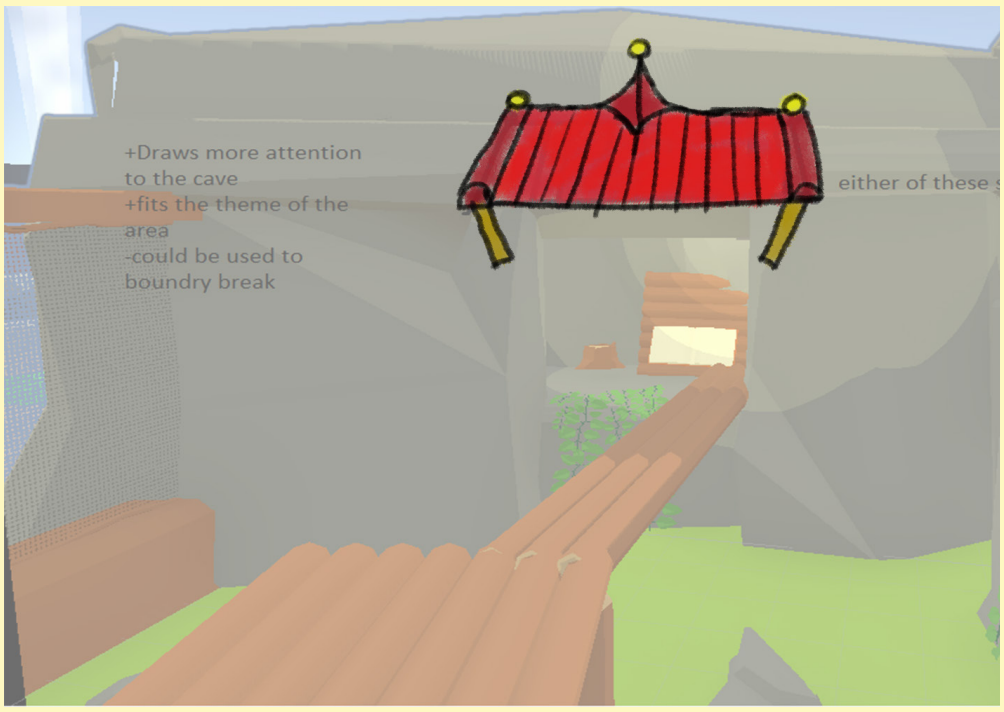


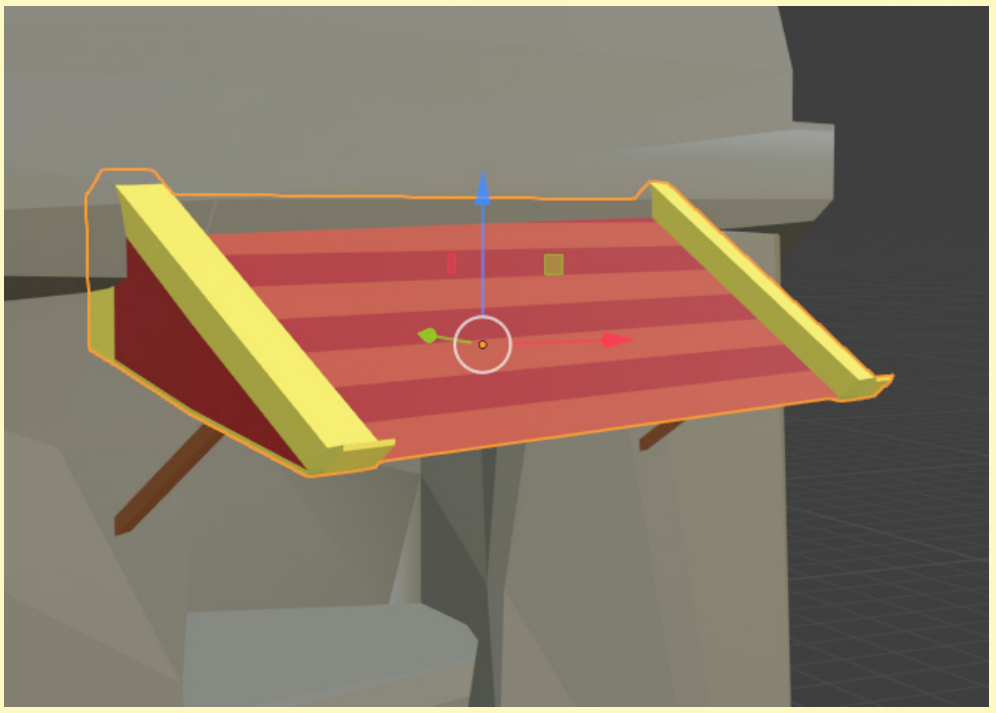
The building will be in the background to give the player the idea that there are some tropical animals.

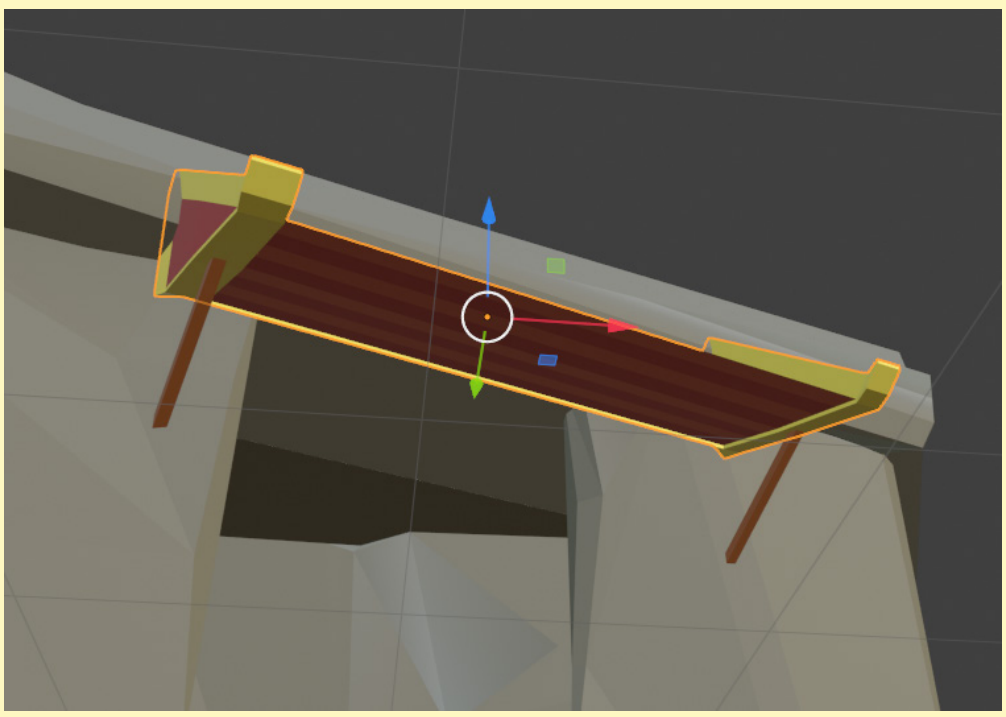
The building is not highly detailed, which is not necessary because it only needs to show a basic shape.

While working on the background I was asked for a overhang that would come in Ali's enclosure







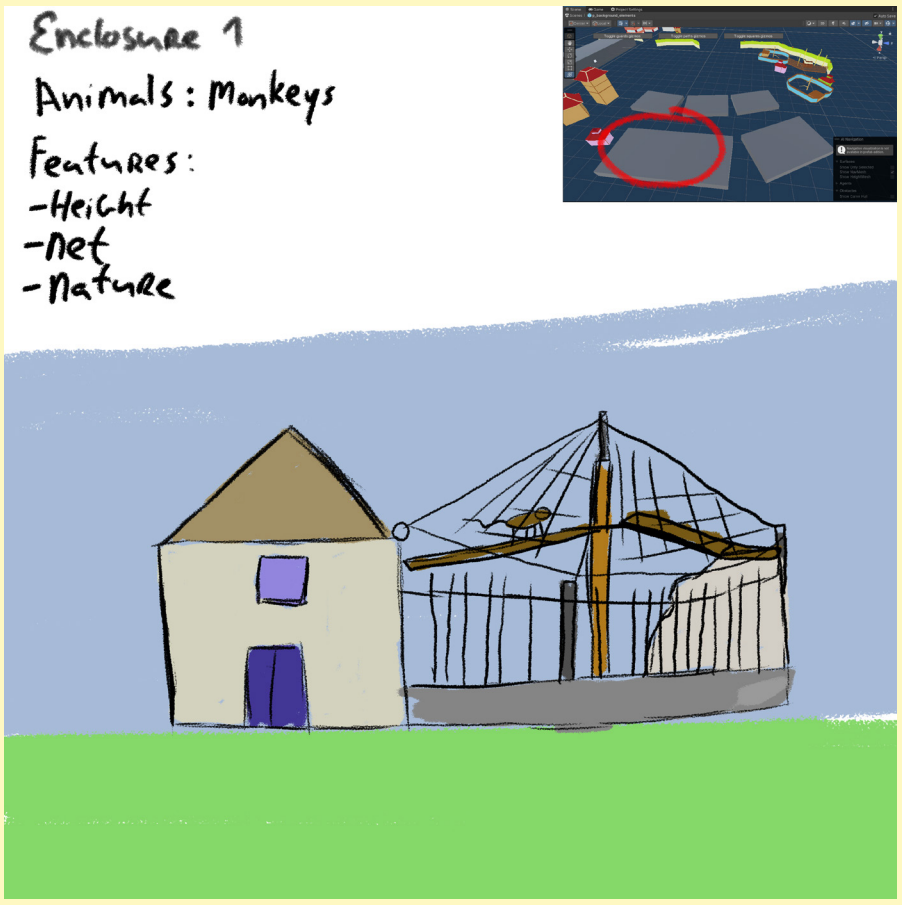


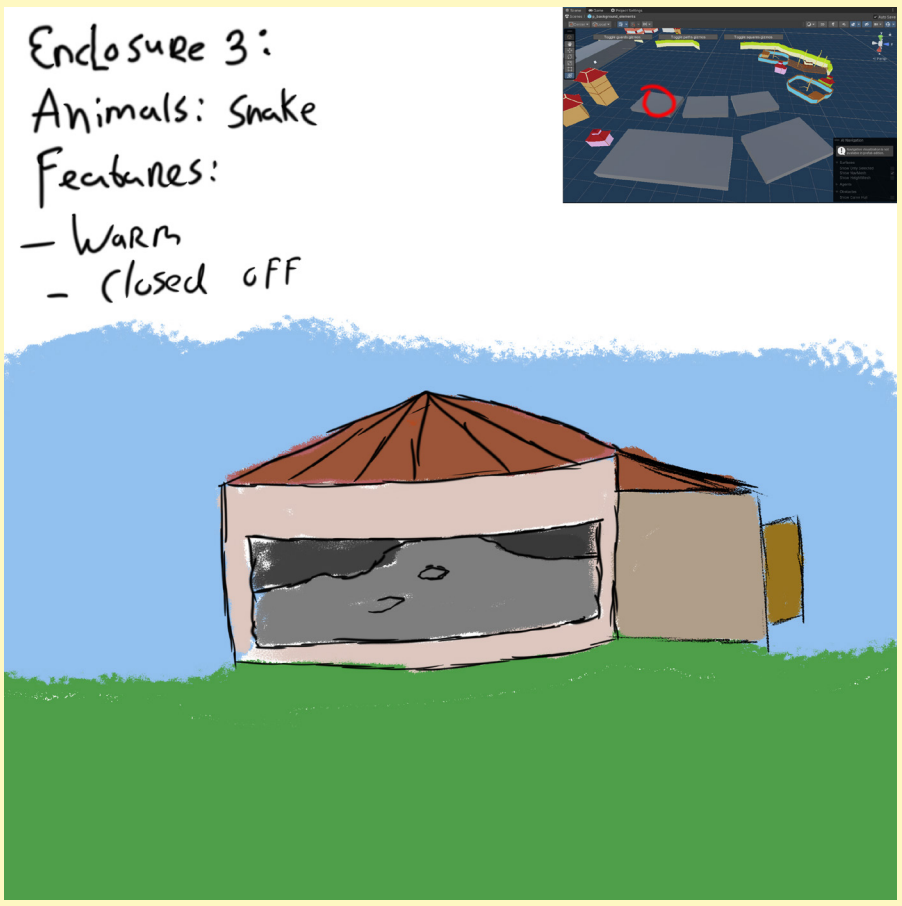
I made two iterations with the idea of gameplay. They liked the Asian theme and the roofs.

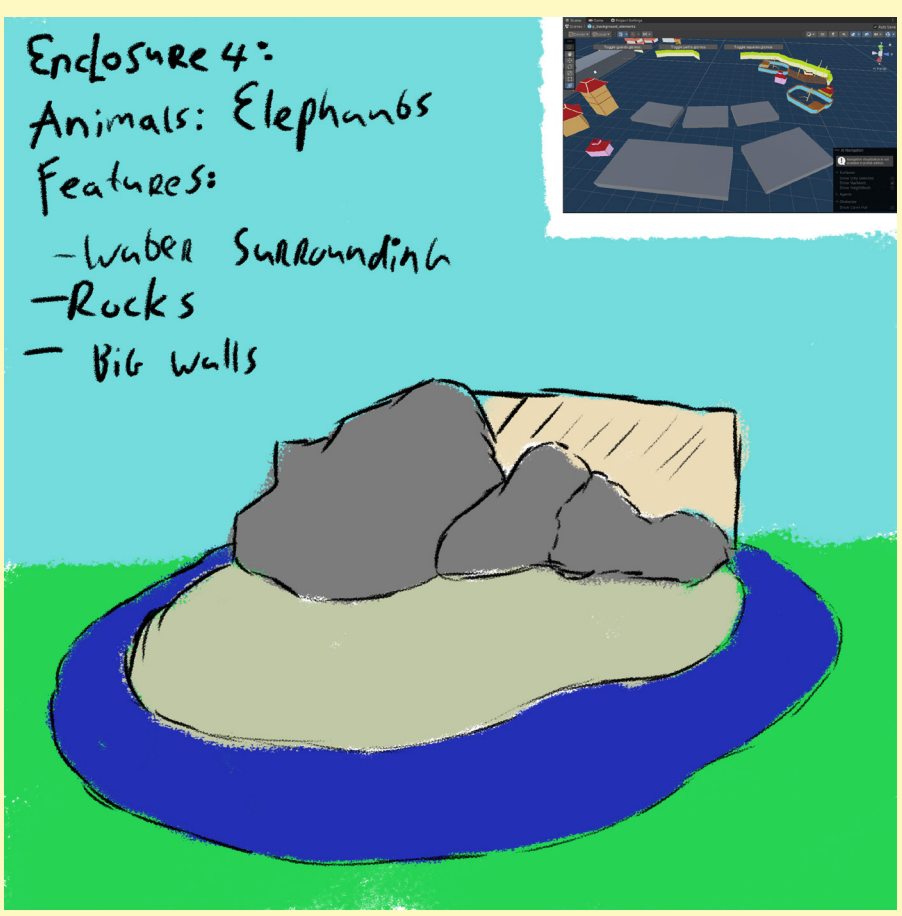
I made one more basic and one that has a more unique shape to it. The basic one, while having fewer details, blended more with the overall theme and was chosen to make.

The props' artist came to me for help with a roof, and the idea to use the overhang and mirror it to make a roof was liked.

After side work, I went back to working on the background environments





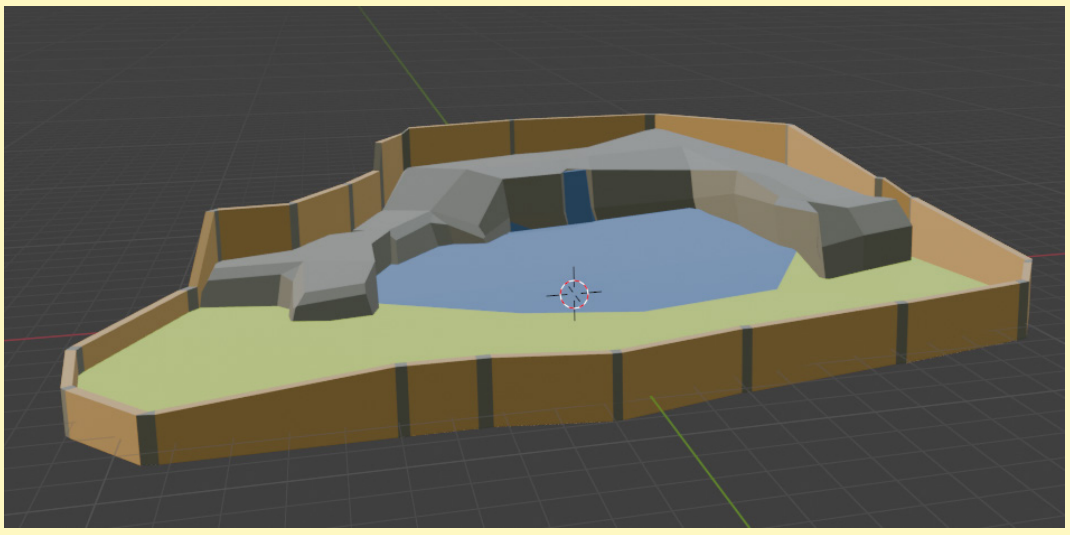


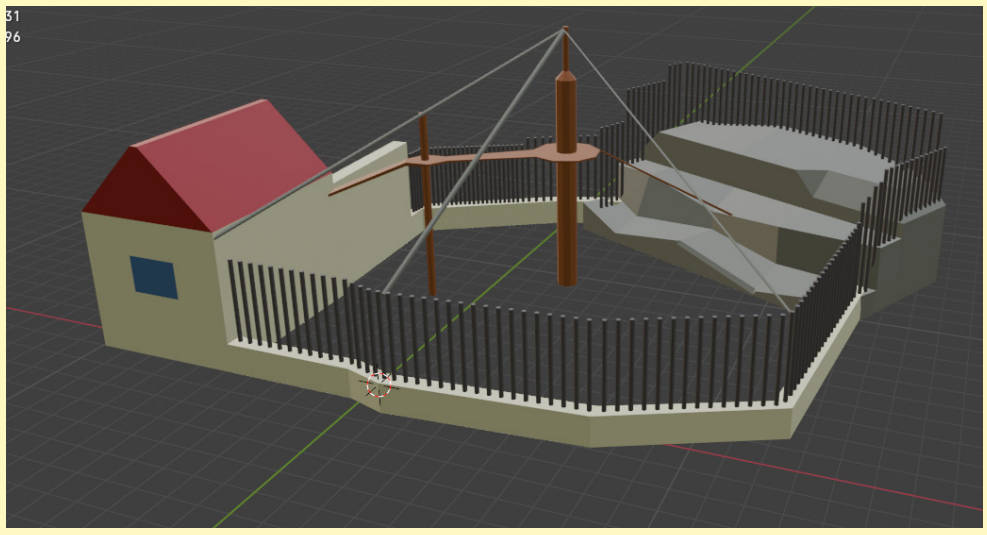
I came up with five animals and started making concepts for them. As an example, I take the birds.

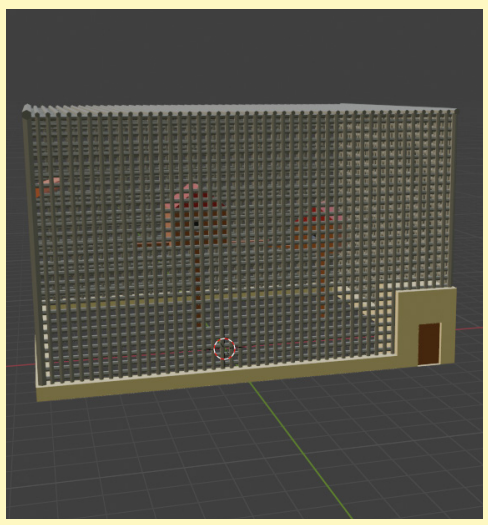
For the birds, I thought about a large space, but something that wouldn't let them escape. With this, I made a big cage that comes with a building outside where the workers can come in and a building inside that the birds can fly into and stand on the side poles.

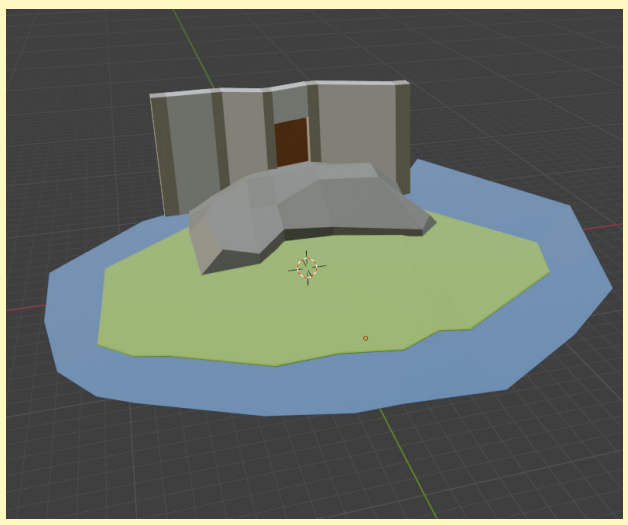
With some knowledge about animals and talking with the art team, I made the five drawings to have my ideas to show.

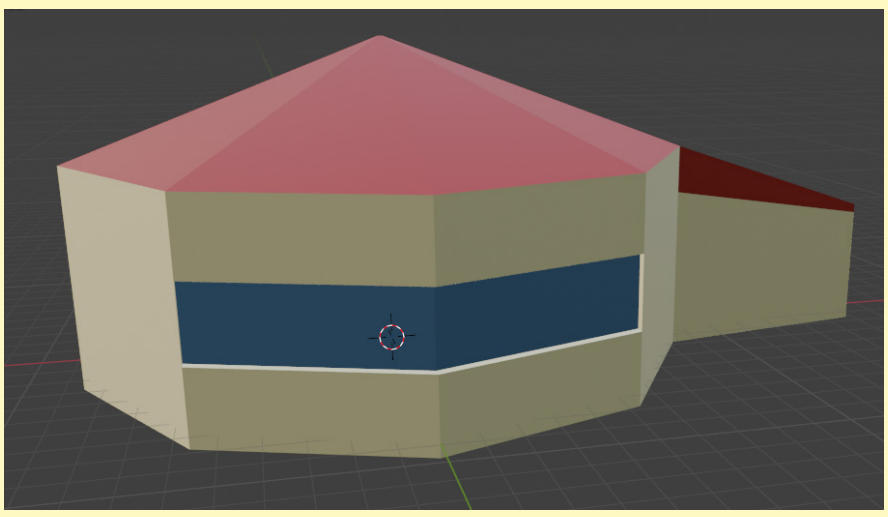
After side work, I went back to working on the background environments

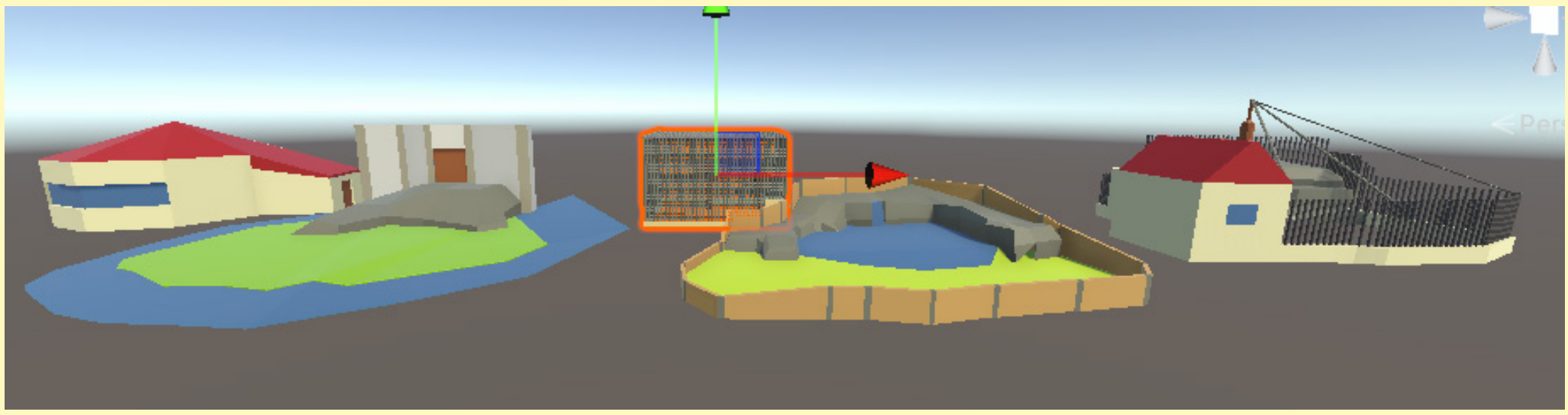






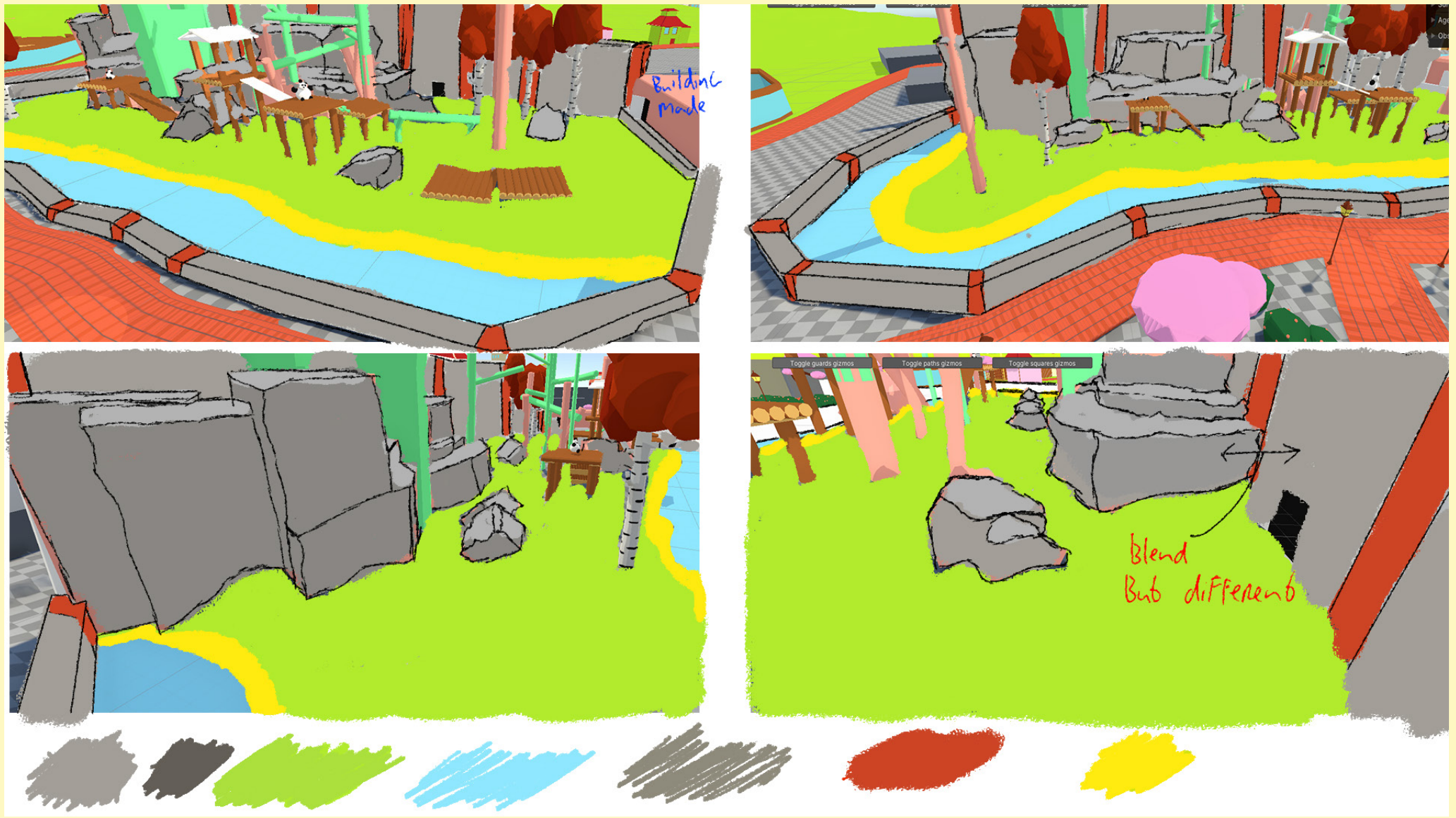






The enclosures for the background all looked distinguishable from each other so that every enclosure looks like it has a way different animal. The player doesn't necessarily have to know what type of animal is in what enclosure but could think about it.
You can assume that the building with the glass has some animals that might need warmth.
The models are not too highly detailed, but they still look nice enough from a distance. The only thing I was skeptical about was the detail on the bird cage and the bars with the monkeys, but from a distance, it looks nice.

Continue working on the Panda enclosure after gameplay is further with the enclosure

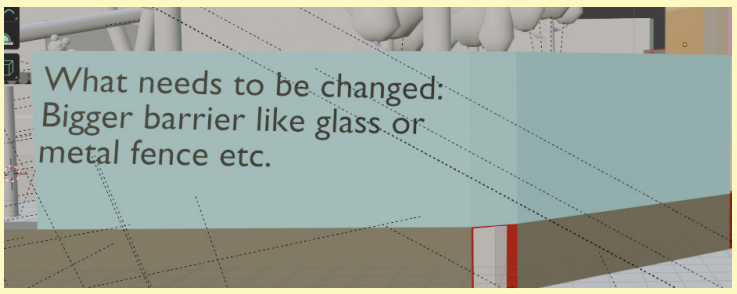


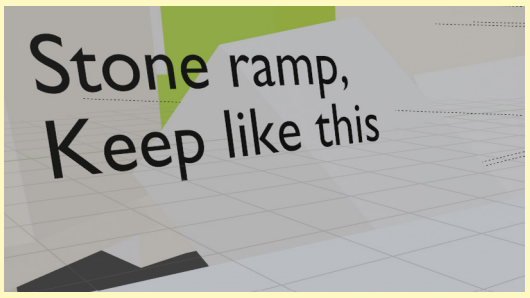
Making artwork to create a feel and get an idea how to finish the enclosure. I use old ideas like the sand from Ali's enclosure and the research on the Asian theme with the red pillars. Also, the rocks and walls have different grays to blend with each other but still look distinguishable from each other.

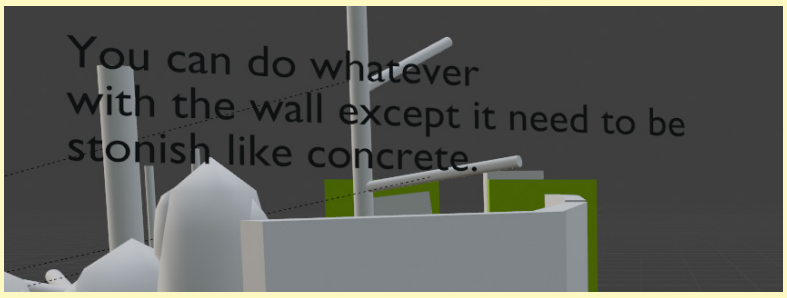
I made during the four pictures during different iterations. Having more red pillars makes it look better.

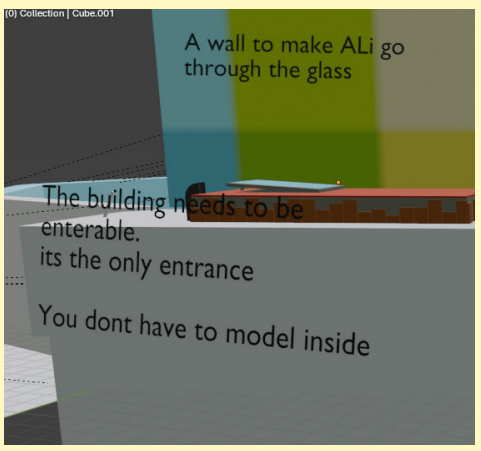
Talking with Alyssa about changes in the enclosure

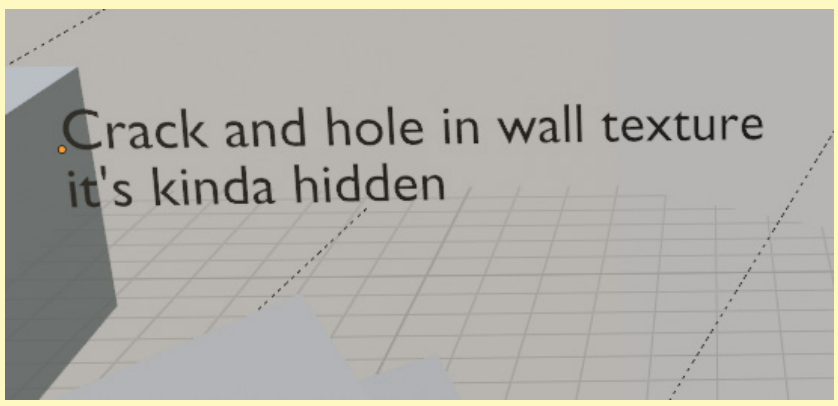
Apparently they made changes again, and there were issues between members of the design team. This was the part where we had to take some serious decisions to have the level finished. With this, I also saw that while making decisions through the whole course, I also made some decisions that changed the gameplay, which in a sense also gave me some gameplay roles.

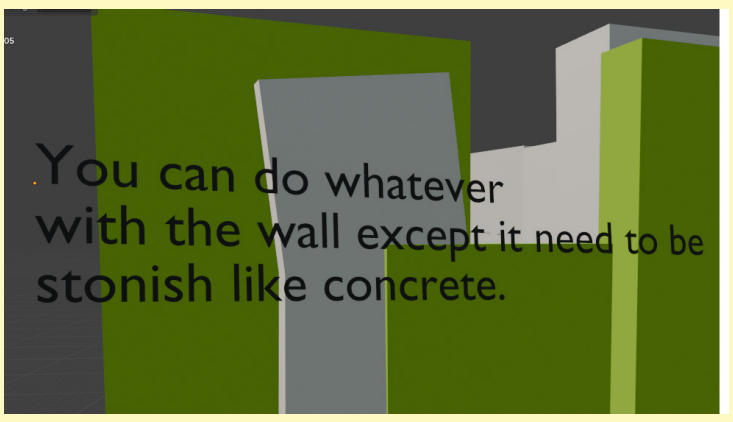




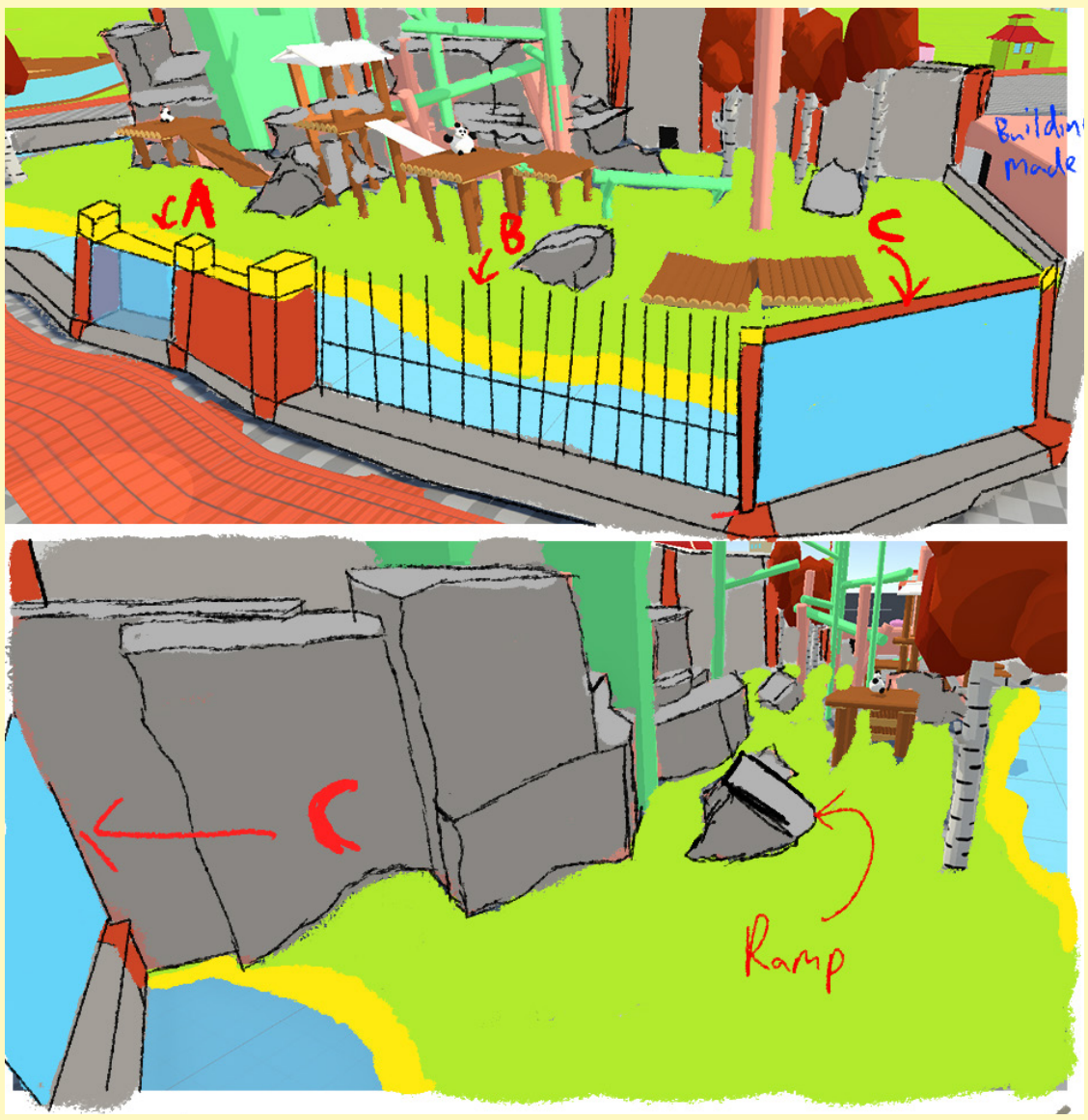








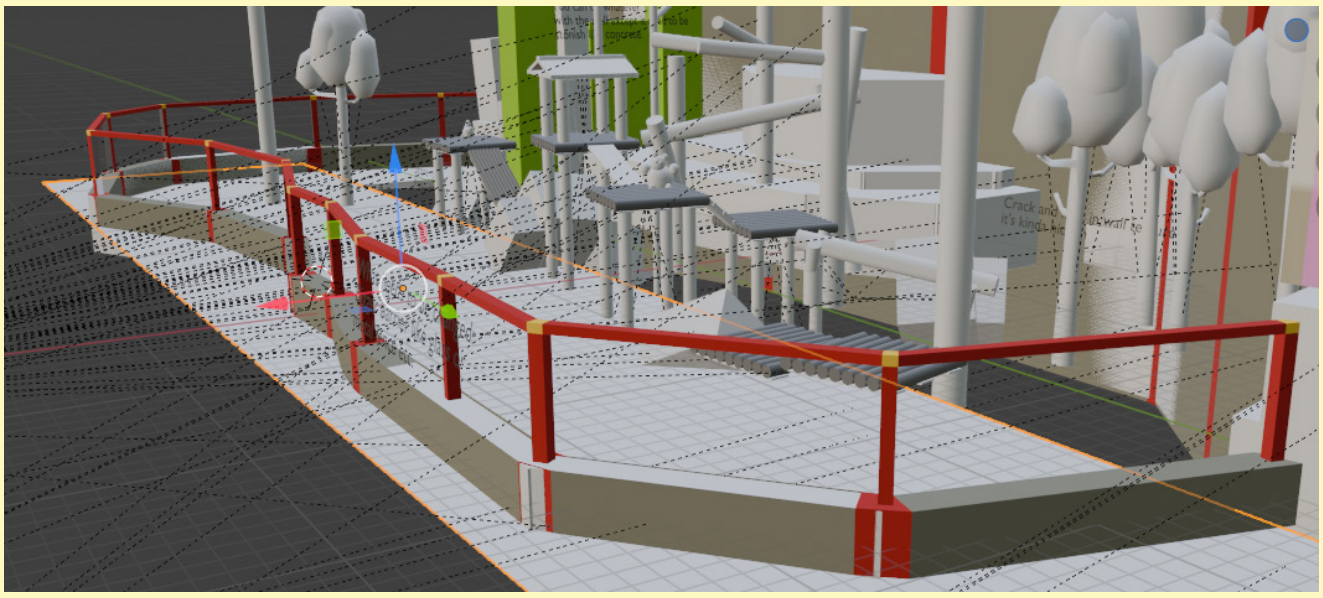
Making iterations for the walls. The new walls have to keep Ali out of it and be realistic.

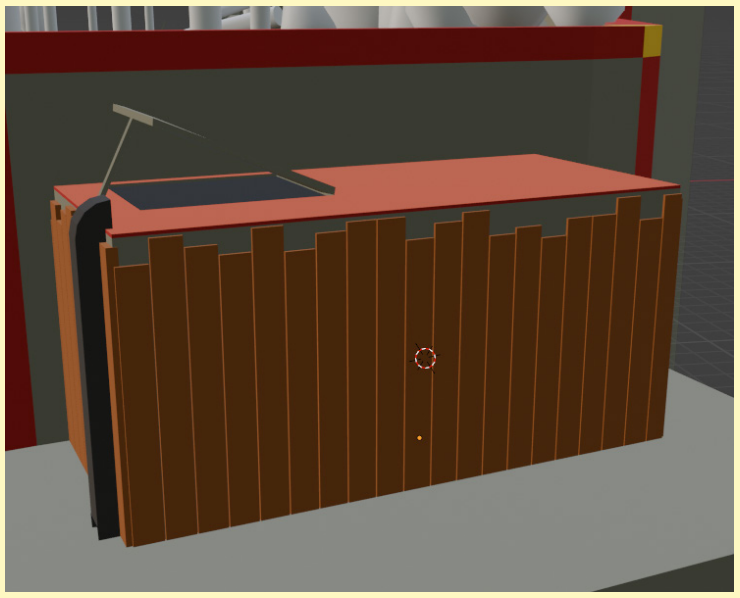


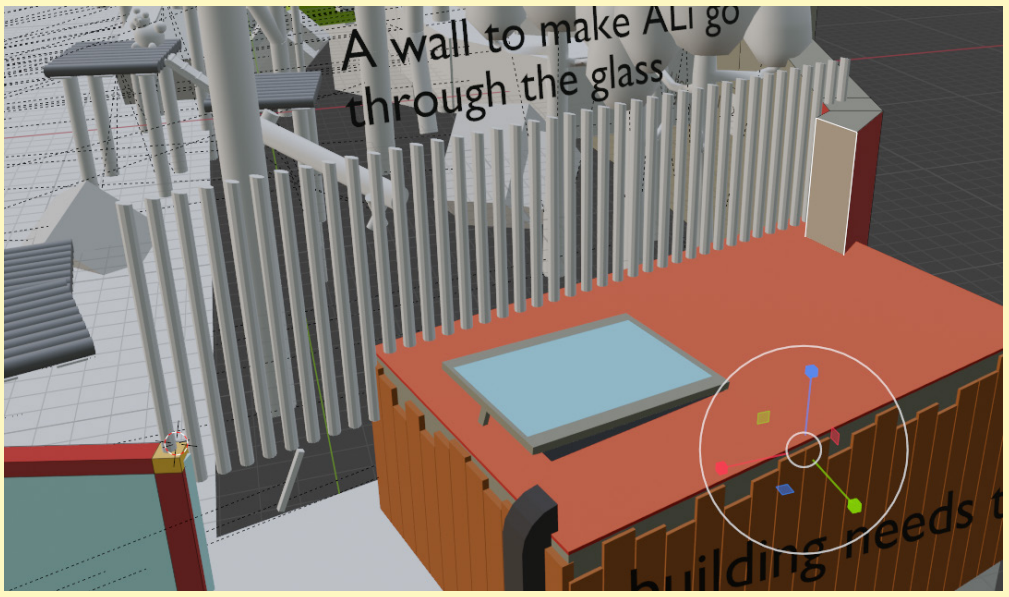
Using one of my core design principles (participatory design), I held a vote again to give people a choice in my design process.

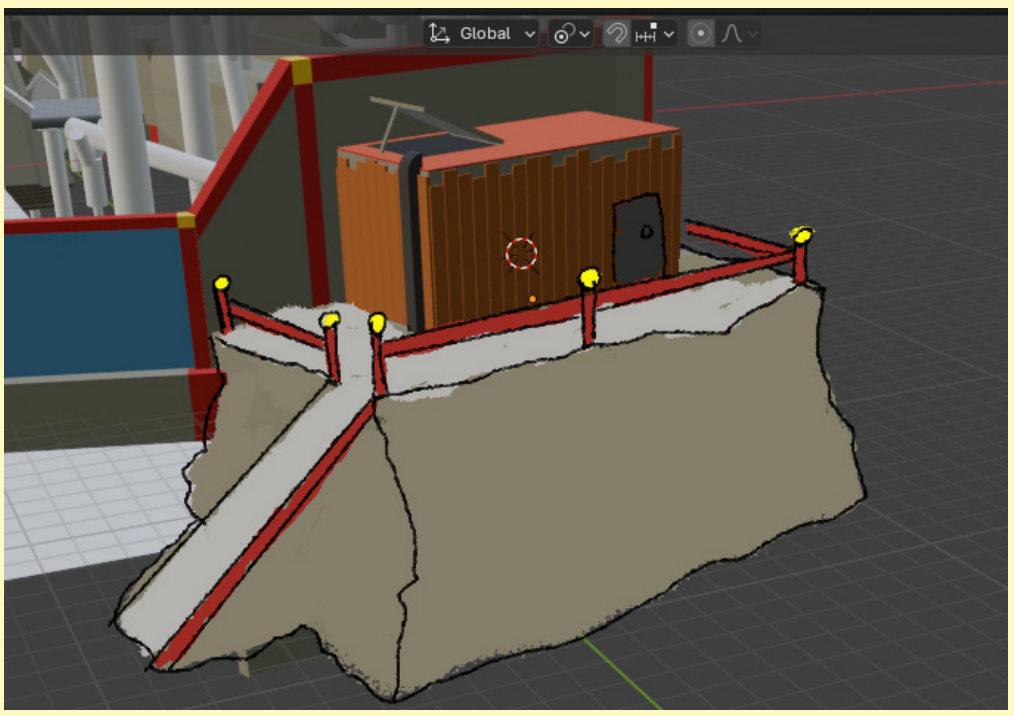
I came up with three types of fences that I could use for the panda enclosure. Two of them used glass and had an Asian theme in them, and one was mostly a basic fence.

Continue working on the Panda enclosure after gameplay continues further on the blockout.
It took very long, so Alyssa and I will continue on it and take over decisions









Creating an entrance. I chose a rock thematic so the entrance blends with the enclosure. The entrance can be used not only by the employees but also by Ali.

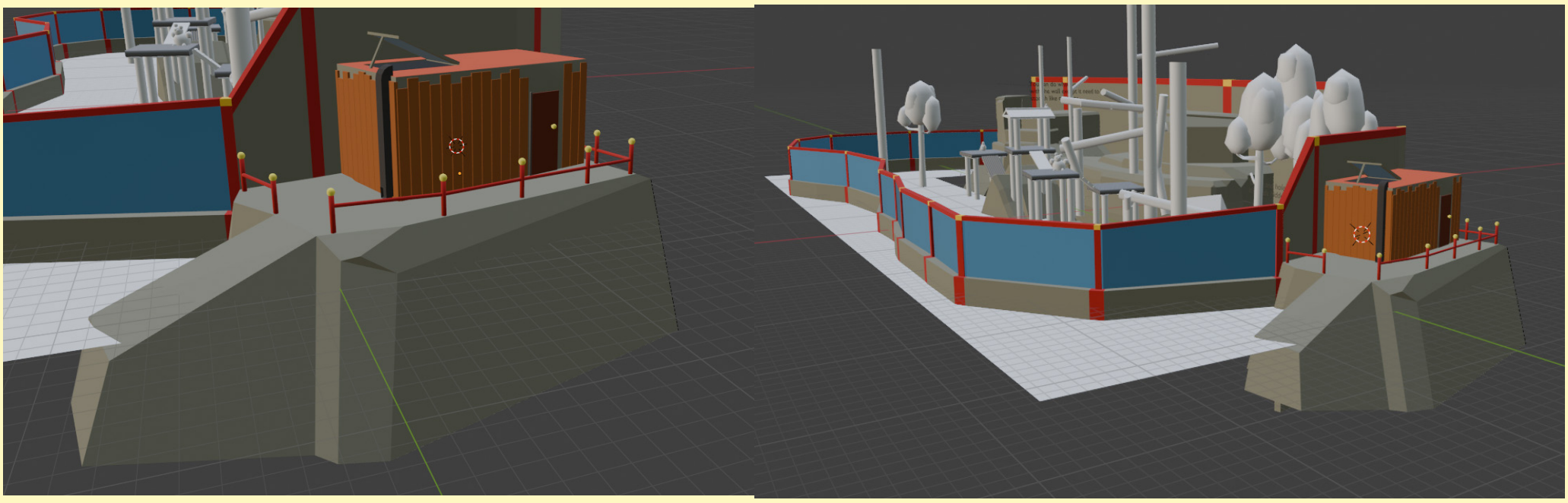
Making the window open because Ali has to go through it, and in the first talk, it was said that it should not be enterable.

The communication between gameplay and the art team could be tough sometimes.

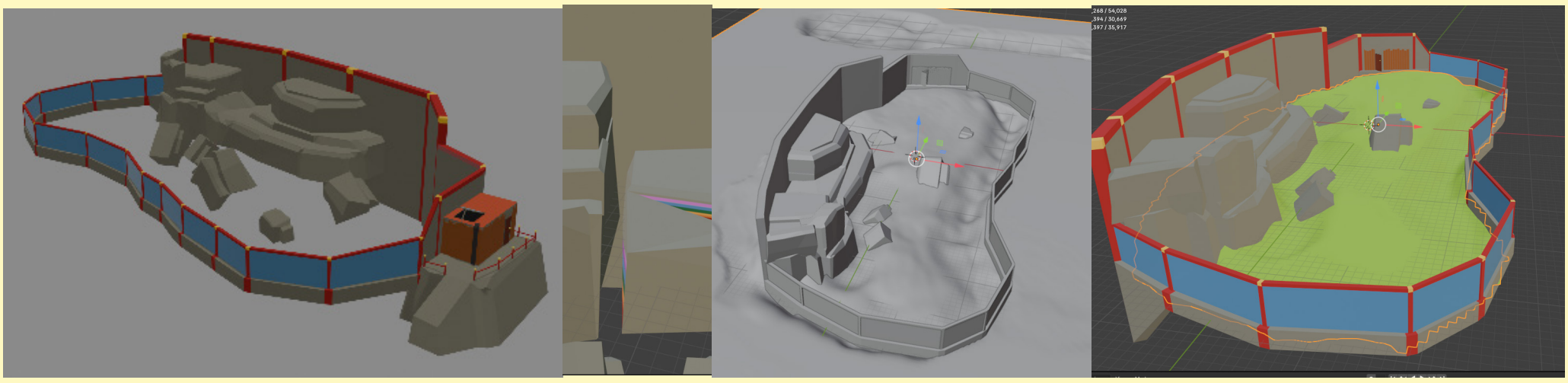
Extending the big walls just like the glass walls for continuation

Continue working on the Panda enclosure after gameplay continues further on the blockout. It took very long, so Alyssa and I will continue on it

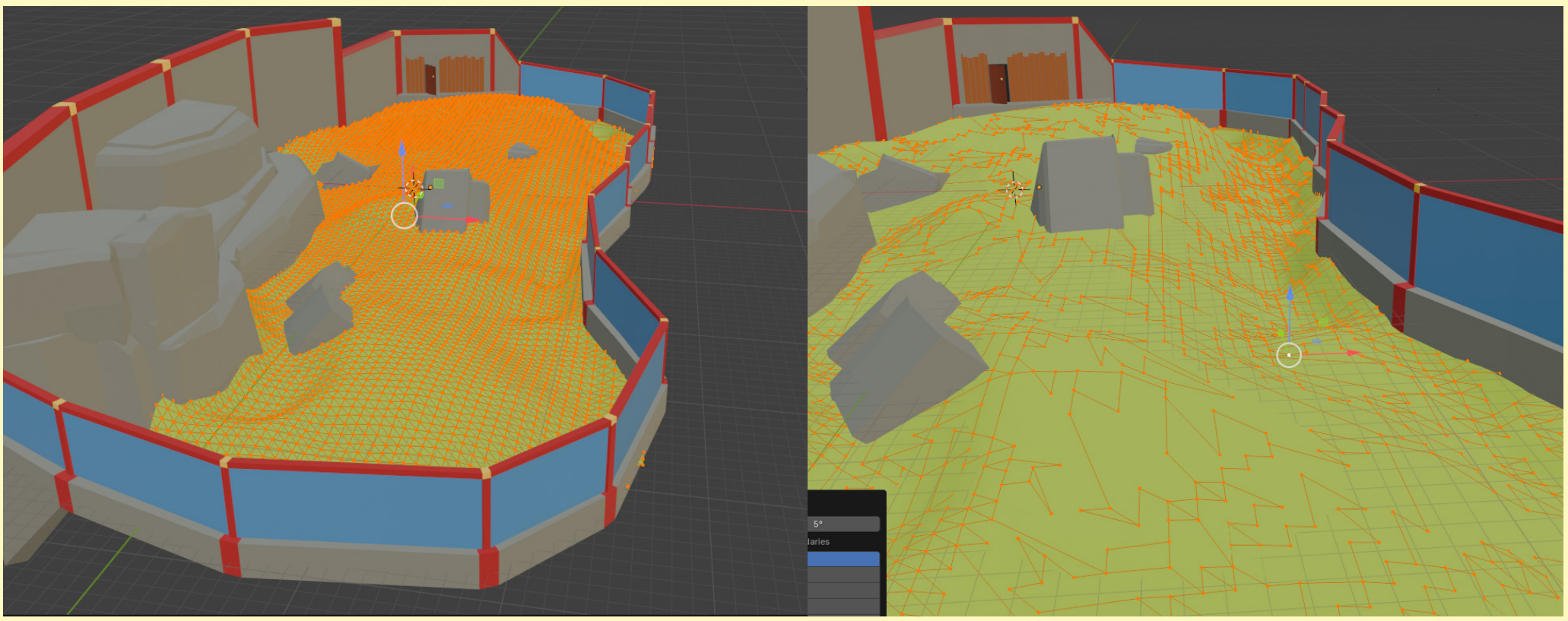
Making more own decisions and creating a new path for the building.



Working together with Alyssa. Making a separation for foliage to get into.



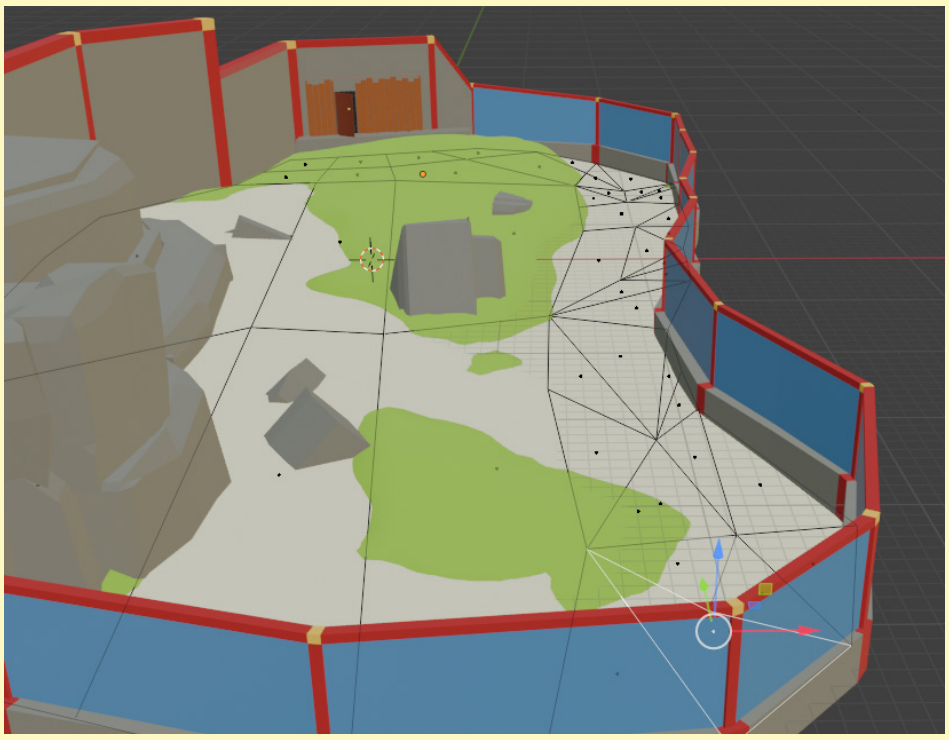
Cutting it out and working on the topology.

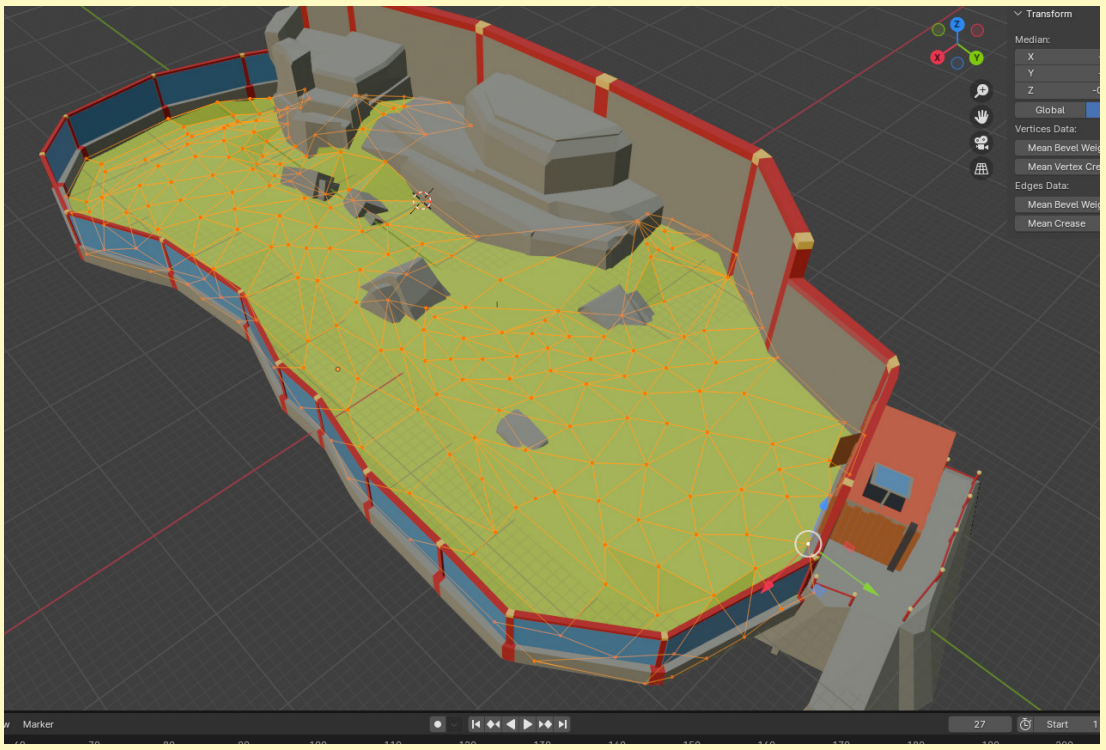


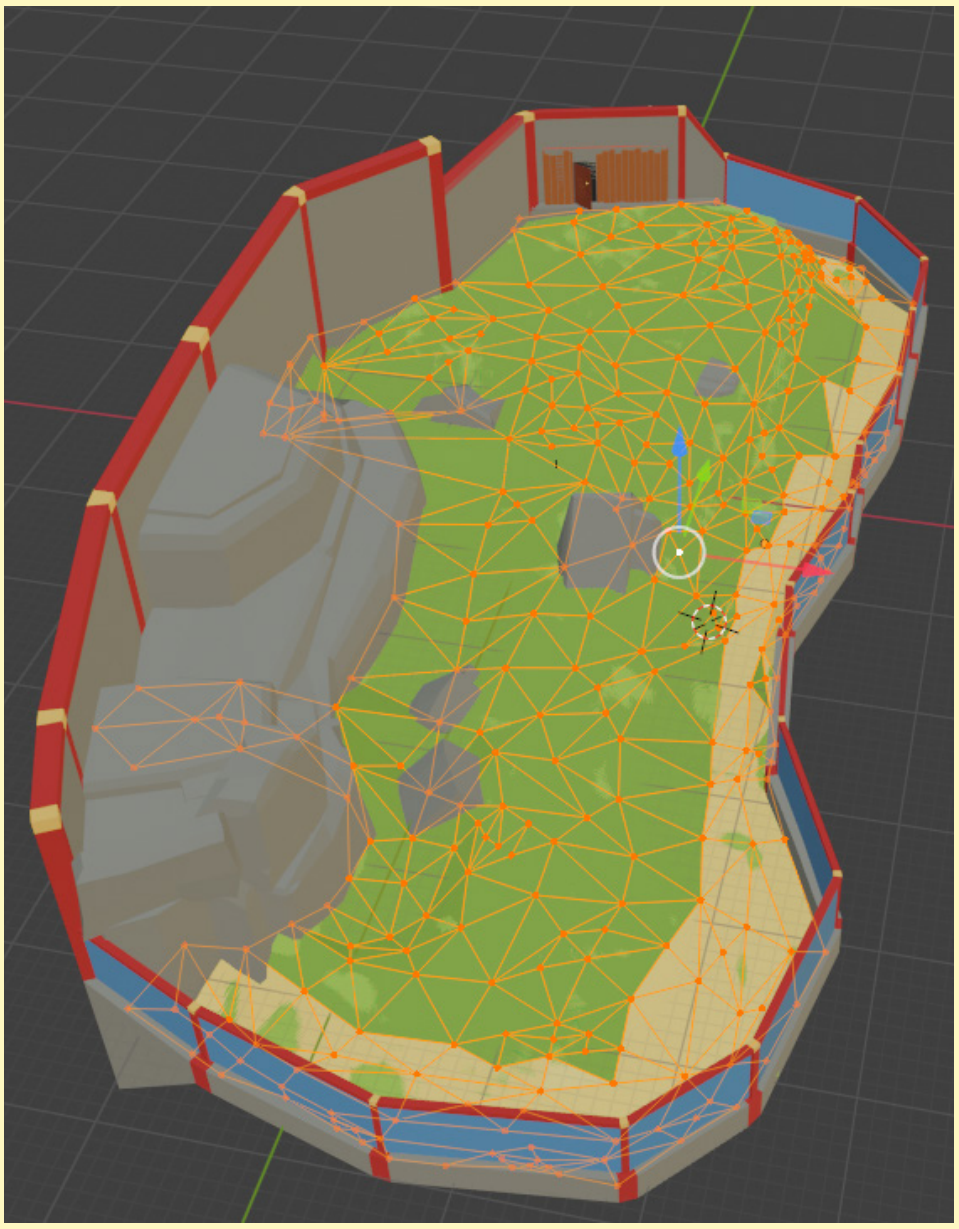
Limited dissolve minimizes but messes

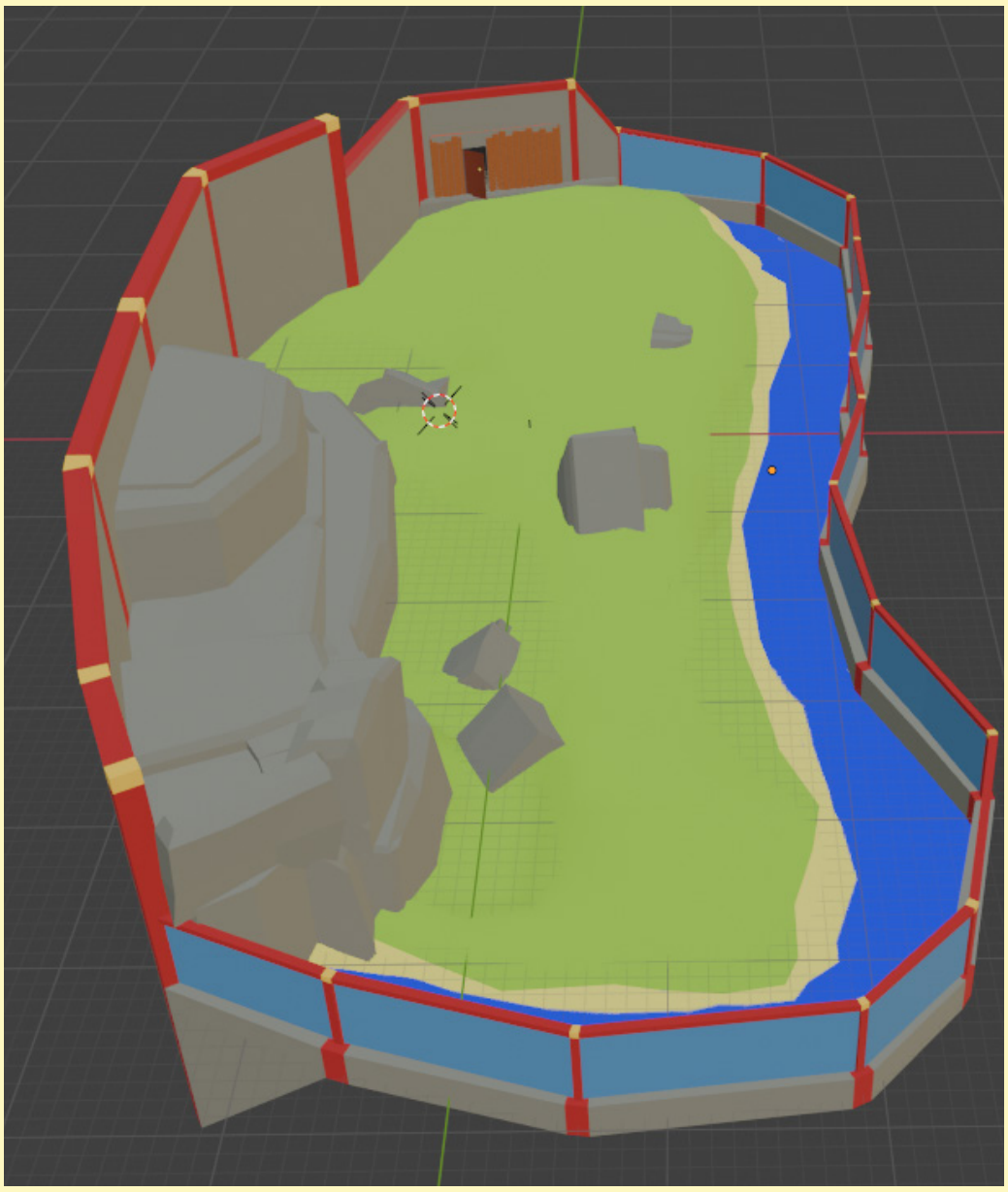
Landscape research and topolgy

Sources model simplification: page 77 - source 79









Trying to fix the UV with a hand-made topology.

I added water and sand to finish the ground.

The integration members were also working on the topology to compare to each other.
During integration, he told me that my topology messed with the movement of the character, so we settled on using his.

In the end, I used my newly learned skill to create a better topology, reducing the size, and adding the recommended amount of faces on each side (3–4).

Sub Specializations

Outside of being the environment artist, I also worked on sub specializations to learn more about other things that can be done when working on a game. One of the specializations was programming. I also sometimes worked on foliage and props that are really intertwined with environment and sometimes overlap with each other. I worked on these sub specializations out of interest and to learn more but also to help out the team and understanding different tasks

Sub-Specialization sprint 1 Programming

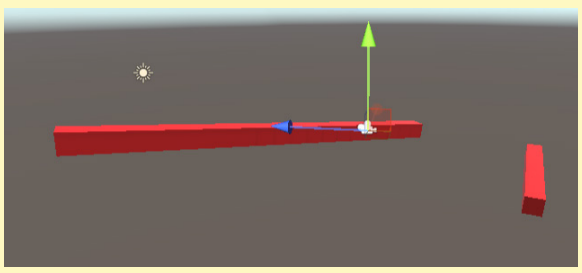
Outside the art team, I also wanted to try out a task that could be assigned to programming. I wanted to create something that combines art and programming and uses a more logical pattern of thinking when solving problems.

One of my core inspirations was a video by Loya.

The video showed an awesome, customizable bridge that the user could easily change.

From analyzation, I saw that there are certain points in the bridge that can be moved around and that will change the shape of the bridge.

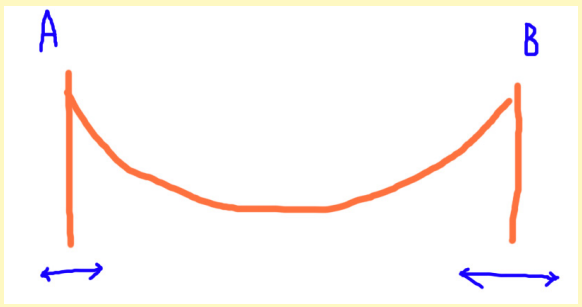
With this principle, I can make my own procedural bridge.



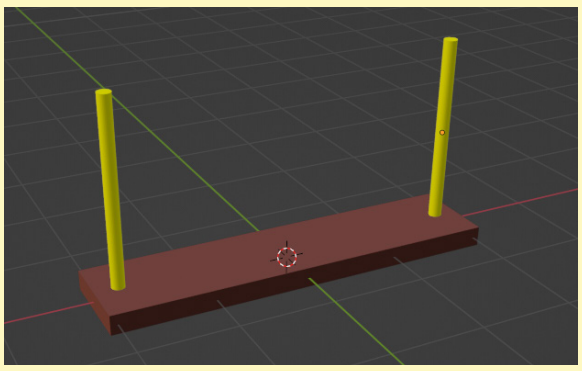
Creating a procedural bridge that goes from A to B using two XYZ coordinates.

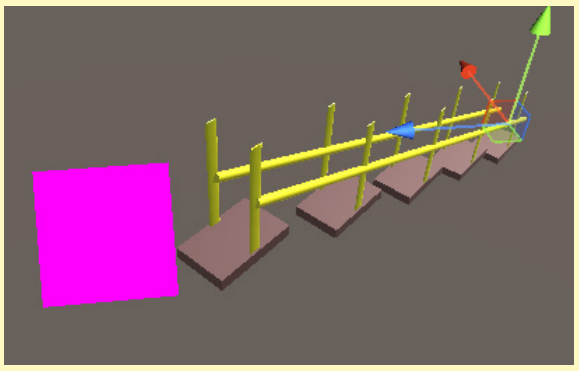
Alyssa gave me the idea to create the bridge, and I want to try to create something using programming that is usable during the process of creating a game.

I started off by making a basic red shape that could be extended to have a basic implementation.



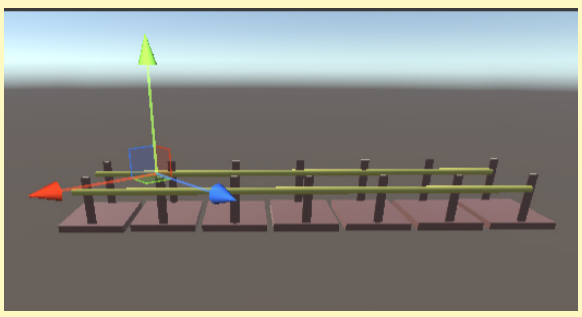
I made an iteration so that you could use the bridge in editor mode. Fixing some bugs.
The bridge kept refreshing when you didn't move anything.

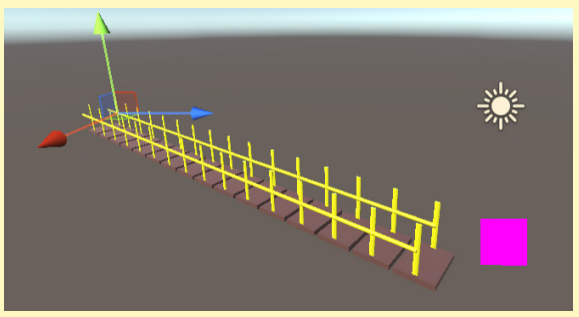




Creating a basic model in Blender which will be the bridge pieces.

I fiddled around in Unity and in the code to have the right rotation and shape until I was happy.





Example codes:

During the coding, I used a new tool that is getting popular with programmers called ChatGPT. ChatGPT can give direct support with any issue, like how I can rotate the 3D-made objects from point A to B.

With ChatGPT, I could create a functional piece of code with the usage of tactical prompts.

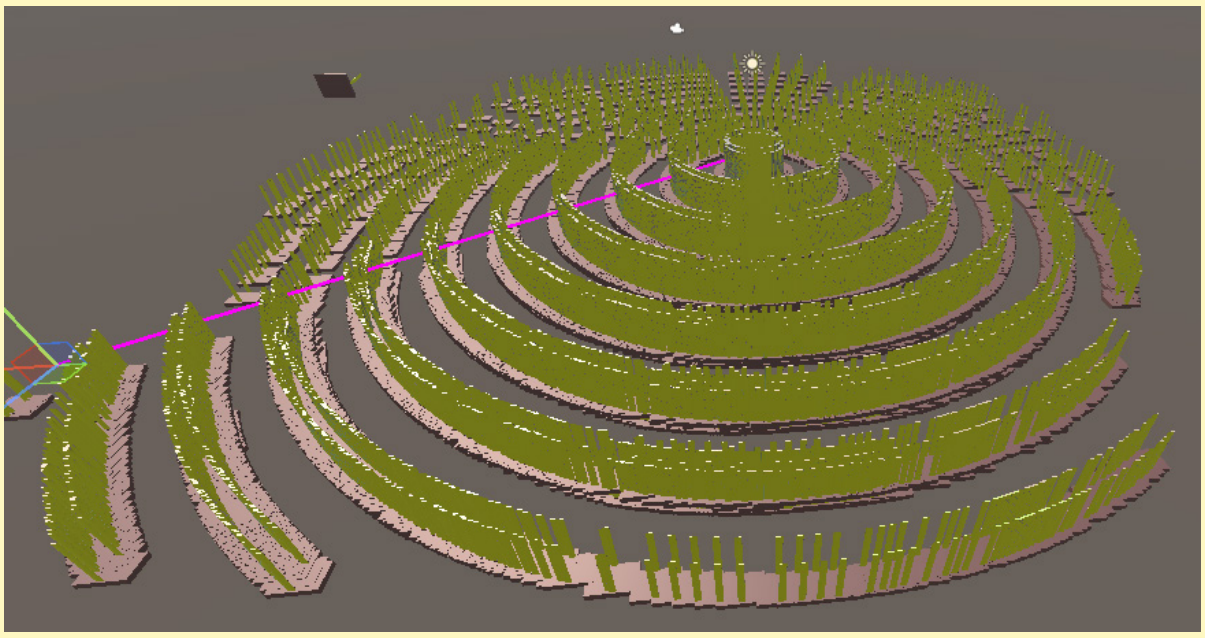
Tactical prompts are about the knowledge of yourself that you put into the AI.

My analyzation and the possibility of creating a changeable bridge with the usage of something like two different points that get connected, gave me the needed knowledge to give ChatGPT tactical prompts to help me with coding issues.

```
using UnityEngine;
using System.Collections.Generic;

[ExecuteInEditMode]// enable when you want to run code in edit
0 references
public class DrawRectangles : MonoBehaviour
{
    2 references
    public GameObject bridgeA; // Point A
    2 references
    public GameObject bridgeB; // Point B
    2 references
    public GameObject bridgePartsPrefab; // The shape that is placed multiple times between A and B to create a bridge
    2 references
    public float rectangleWidth = 1f;
    2 references
    public GameObject bridgeParent; // The parent GameObject to organize the bridge parts

    3 references
    private List<GameObject> bridgeParts = new List<GameObject>(); // List to store instantiated bridge parts

    0 references
    void Update()
    {
        if (bridgeA != null && bridgeB != null && bridgePartsPrefab != null && bridgeParent != null)
        {
            Draw3DRectangles();
        }
        else
        {
            Debug.LogError("BridgeA, BridgeB, BridgePartsPrefab, or BridgeParent is not assigned!");
        }
    }

    1 reference
    void Draw3DRectangles()
    {
        Vector3 point1 = bridgeA.transform.position;
        Vector3 point2 = bridgeB.transform.position;

        Vector3 direction = point2 - point1;
        float distance = direction.magnitude;

        // Destroy previous bridge parts
        DestroyBridgeParts();

        for (float i = 0; i < distance; i += rectangleWidth /1.9f) //define distance
        {
            Vector3 position = point1 + direction.normalized * i + direction.normalized * rectangleWidth * 0.5f;
            GameObject bridgePart = Instantiate(bridgePartsPrefab, position, Quaternion.identity, bridgeParent.transform);
            bridgeParts.Add(bridgePart); // Store the instantiated bridge part in the list

            Quaternion rotationToB = Quaternion.LookRotation(direction, Vector3.up);
            bridgePart.transform.rotation = Quaternion.Euler(2/0f, rotationToB.eulerAngles.y, 0f); //Keeps the 3d model upright but moves to the direction op B

            Vector3 originalScale = bridgePart.transform.localScale;
            bridgePart.transform.localScale = originalScale;
        }
    }

    1 reference
    void DestroyBridgeParts()
    {
        foreach (GameObject part in bridgeParts)
        {
            DestroyImmediate(part); // Destroy each bridge part in the list
        }
        bridgeParts.Clear(); // Clear the list after destroying all parts
    }
}
```

```
void Draw3DLineBetweenPoints()
{
    DestroyLines(); // Destroy previously created lines

    Vector3 direction = pointB.transform.position - pointA.transform.position;
    Vector3 scale = new Vector3(lineWidth, direction.magnitude / 2.0f, lineWidth);

    GameObject line1 = CreateLine();
    line1.transform.position = (pointA.transform.position + pointB.transform.position) / 2.0f +
                               (direction.normalized * lineHeightOffset); // Adjust height for the first line

    GameObject line2 = CreateLine();
    Vector3 perpendicularVector = Vector3.Cross(direction, Vector3.up).normalized; // Arbitrary vector perpendicular to the line
    line2.transform.position = (pointA.transform.position + pointB.transform.position) / 2.0f +
                               (direction.normalized * lineHeightOffset) +
                               (perpendicularVector * 1.1f); // Offset the second line by 0.5 units

    line1.transform.up = direction.normalized;
    line2.transform.up = direction.normalized;
    line1.transform.localScale = scale;
    line2.transform.localScale = scale;

    lines.Add(line1); // Store the instantiated lines in the list
    lines.Add(line2);

    // Set the BridgeParts object as the parent of the lines
    GameObject BridgeObject = GameObject.Find("Bridge");
    if (BridgeObject != null)
    {
        line1.transform.parent = BridgeObject.transform;
        line2.transform.parent = BridgeObject.transform;
    }
    else
    {
        Debug.LogError("BridgeParts object not found!");
    }
}

using UnityEngine;
using System.Collections.Generic;

[ExecuteInEditMode]// enable when you want to run code in edit
0 references
public class Draw3DLine : MonoBehaviour
{
    4 references
    public GameObject pointA; // Point A
    4 references
    public GameObject pointB; // Point B
    2 references
    public float lineWidth = 0.1f; // Width of the line
    2 references
    public float lineHeightOffset = 1.0f; // Height offset of the line
    2 references
    public Material lineMaterial; // Material for the line

    4 references
    private List<GameObject> lines = new List<GameObject>(); // List to store instantiated lines

    0 references
    void Update()
    {
        if (pointA != null && pointB != null && lineMaterial != null)
        {
            Draw3DLineBetweenPoints();
        }
        else
        {
            Debug.LogError("PointA, PointB, or LineMaterial is not assigned!");
        }
    }
```

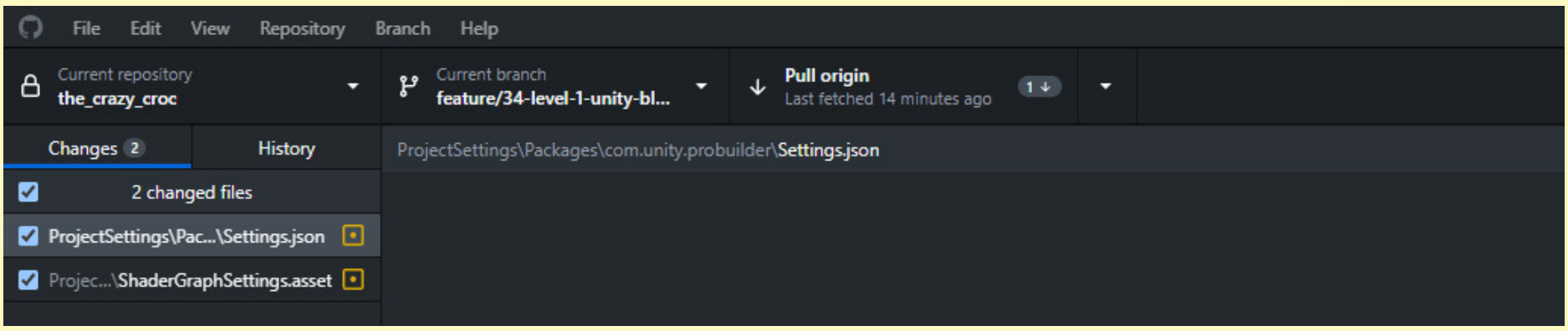
```
using UnityEngine;

0 references
public class DrawRectangles : MonoBehaviour
{
    2 references
    public GameObject bridgeA; //Point A
    2 references
    public GameObject bridgeB; //Point B
    2 references
    public GameObject bridgePartsPrefab; //The shape that is placed multiple times between A and B to create a bridge
    3 references
    public float rectangleWidth = 1f;


    0 references
    void Start()
    {
        if (bridgeA != null && bridgeB != null && bridgePartsPrefab != null) //CHeck if the three gameobjects exist.
        {
            Draw3DRectangles();
        }
        else
        {
            Debug.LogError("BridgeA, BridgeB, or BridgePartsPrefab is not assigned!");
        }
    }

    1 reference
    void Draw3DRectangles()
    {
        Vector3 point1 = bridgeA.transform.position;
        Vector3 point2 = bridgeB.transform.position;

        // Calculate the direction and distance between the two points
        Vector3 direction = point2 - point1;
        float distance = direction.magnitude;

        // Calculate the rotation to align the rectangles with the direction
        Quaternion rotation = Quaternion.LookRotation(direction);

        // instantiate rectangles along the line
        for (float i = 0; i < distance; i += rectangleWidth)
        {
            Vector3 position = point1 + direction.normalized * i + direction.normalized * rectangleWidth * 0.5f;
            GameObject bridgePart = Instantiate(bridgePartsPrefab, position, rotation);

            // Set the scale to match the width of the rectangle
            bridgePart.transform.localScale = new Vector3(rectangleWidth, bridgePart.transform.localScale.y, bridgePart.transform.localScale.z);
        }
    }
```



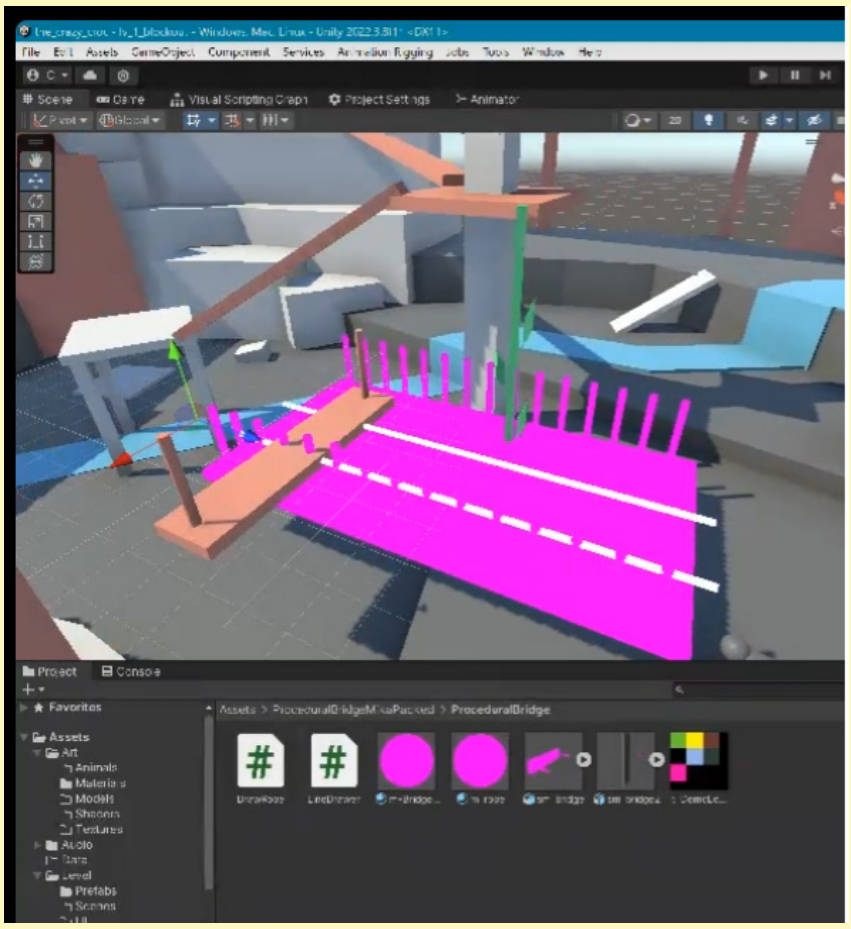
I wanted the bridge to draw whenever you move something, so I put the drawing parts in the void start into void update so that it will update and make changes.

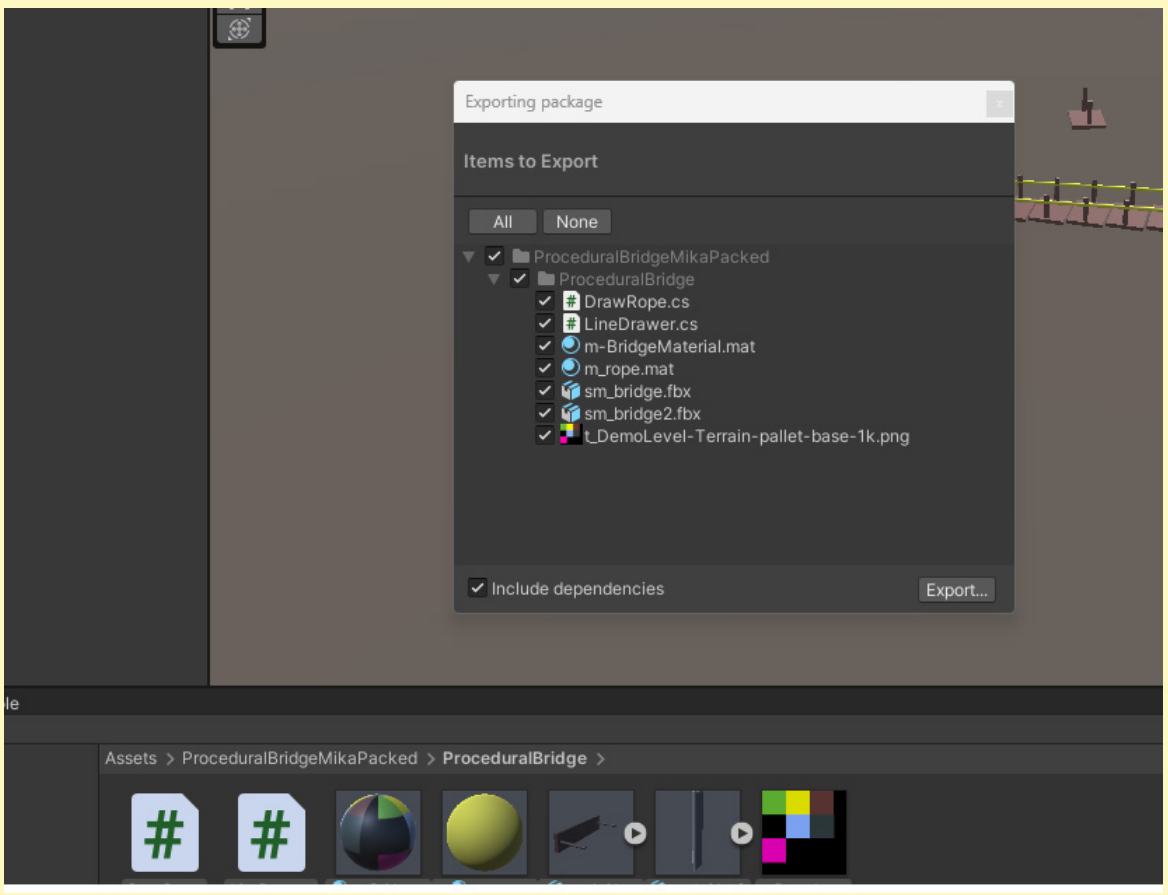
The issue was that the drawing worked, but the code didn't delete the older parts, so you would end up with a lot of bridge parts.

Trying to integrate things. There were issues with the materials and scripts that I made that didn't work in the other Unity project



I am working on the bridge and making an iteration for Ali.





Talking with people from gameplay.

We tested out the bridge, and I created a custom package. There were some issues with implementation but the idea could be interesting.

Links of the made bridges:
https://youtu.be/7zl2kg_j6PY?si=y3KnG1nZHM-2GmIB
https://www.youtube.com/watch?v=7zl2kg_j6PY
https://www.youtube.com/watch?v=PIkdrk5FBRw

Sources Bridge: page 75 - sources 60-61

Sub-Specialization Programming Reflection

What did go well:

- I could create something functional with Blender and Unity.
- I could use a new approach for coding issues with ChatGPT.
- I could analyze a video and find my own approach to a certain issue (how do I create a changing bridge?).
- I communicated with the project manager, and he saw possibilities in use cases.
- The bridge was customizable using the inspector so that people could make changes if they needed to.

What could go better:

-Take more time and do more research for the bridge. I had many times when I wanted to rush it, so I could also work on environment. Because of this, I haven't tried completely different approaches that could work better.

-While I was working on it, the art team knew what I was doing, but programming and gameplay weren't fully clear about my bridge. Because of this, it sometimes came as a surprise when I delivered stuff.
If I communicated it better with more people, it might have made it into the game and changed the workflow of gameplay.

Sub-Specialization sprint 2
Foliage

Foliage, in the case of the project, was mostly about designing vegetation, like trees, that would add nature to the world. Foliage and environment can have some major overlap, since some companies combined the two for Crazy Croc; they are two separate specialties.

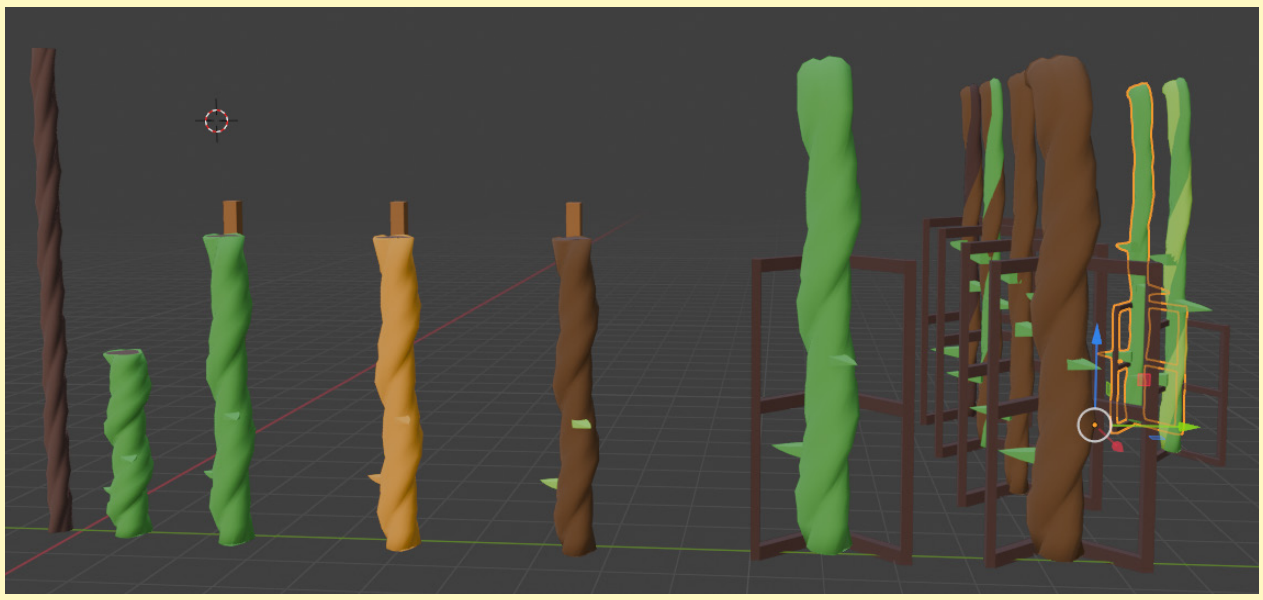
Making a climbable plant that Ali could climb. The foliage artist was sick, so I had to take some tasks over while working on the environment. Since I had an overall feeling of the environment and some knowledge of how stuff should look, I used that knowledge to help out with foliage.

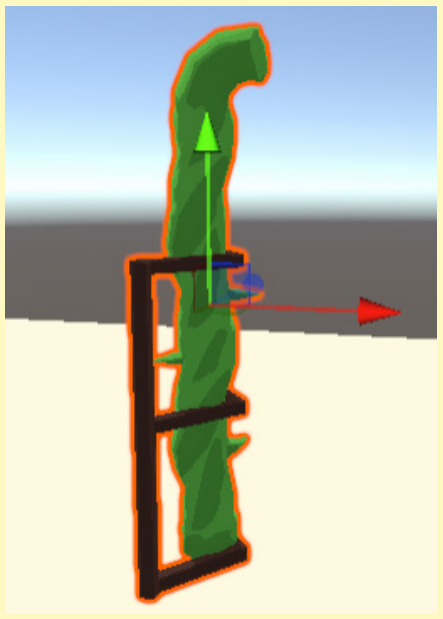
They wanted a climbable tree that Ali could use. I wanted something that was both visible and realistic, so I made many iterations that each added something different.

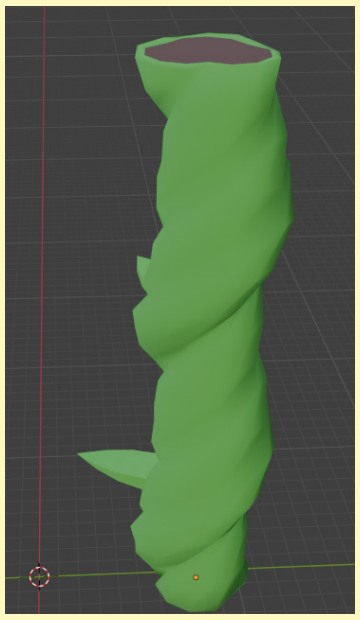
I made different colors, which mostly came in brown and green, which worked with the green foliage made by the foliage artist. I communicated with the art team and designers and asked which they liked. There was some discussion between the brown color and the green color. In the end, I and some others liked the green one.

One of the major design choices I made was adding support. The climbable plant was planned to go straight up, but I wouldn't just have one big plant going straight that also needed to take the weight of Ali into account, so I designed different supports that would hold the plant.

During foliage I used a tutorial for a rope to make a rotating shape.
I used the screw modifier on a circle with not that many polys to not make it too high poly which can cause performance issues in the game.







Sources foliage: page 76 - source 62

Sub-Specialization
Foliage Reflection

What did go well:

- I made many different iterations for the climbable plant to find the best result.
- I communicated well with the other teams and people, so I wasn't the only one that decided to come into the game. In my environment specialization, I learned to take other people's ideas into account.

What could go better:

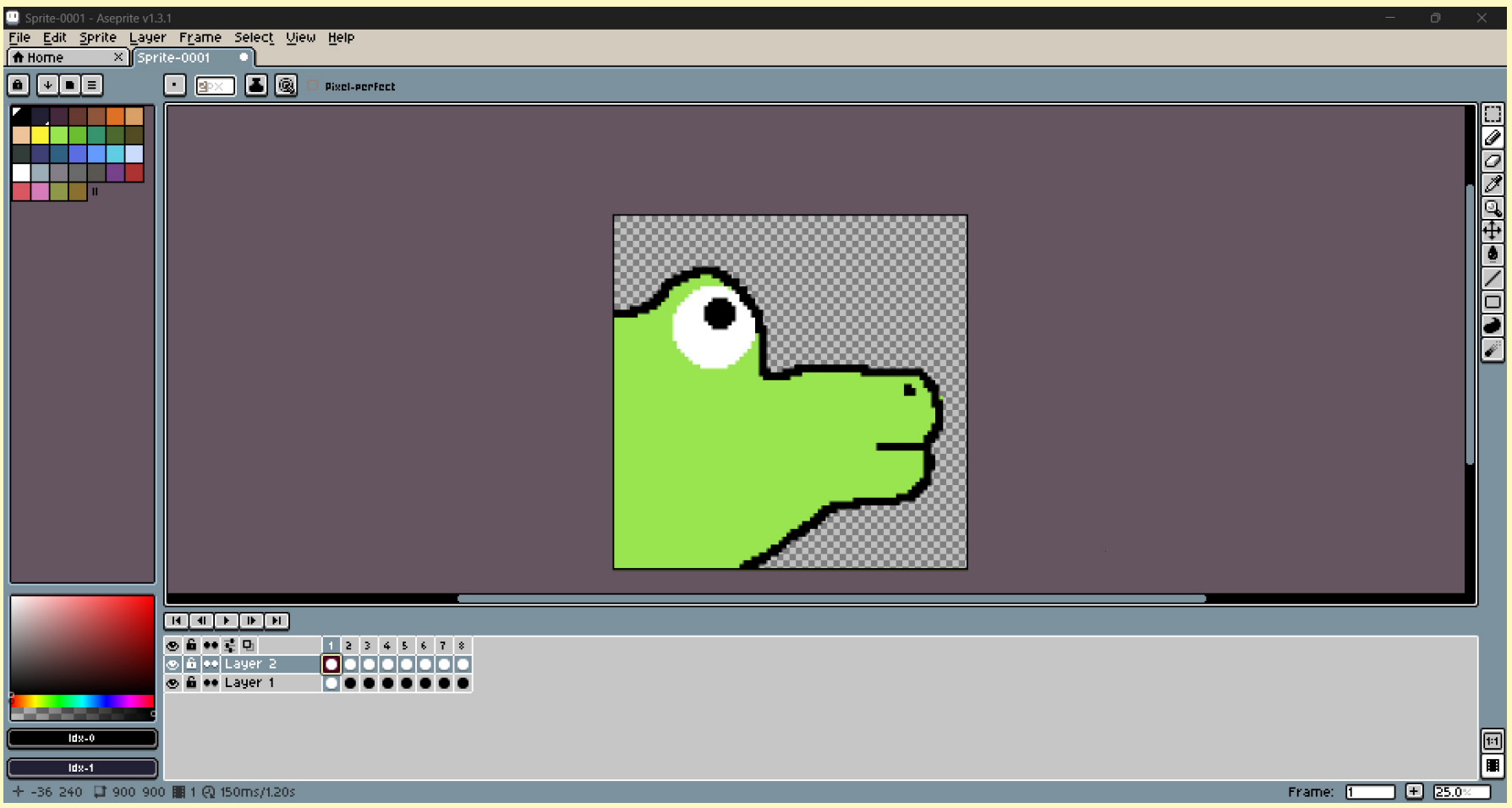
- A broader research into plants. While I had done research earlier when working on the environment, I could do a little research on climatic plants.
- I made different plants, but I could make some different ones with drawings to make something quick and then model it.

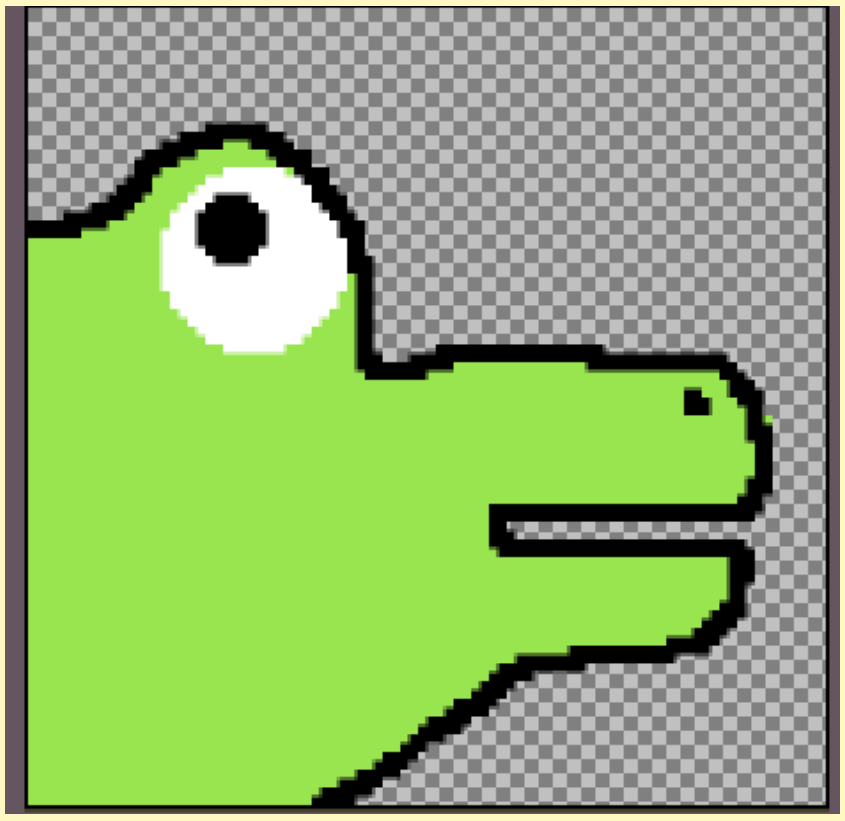
Sub-Specialization sprint 2
2D art

While I was mostly busy with creating things in 3D, I wanted to try out something to make in 2D, and they asked for promotional stuff to advertise the game.

I had the idea to make a 2D crocodile since it's one of the main attractions of the game, literally in the name. I used a pixel art style to vary a bit from the core style and animated it so it had moving eyes and mouths.

In the end, it was unused because it went off the art style, and the 2D artist came up with an animation of a crocodile that would also be the literal logo and looked better. In the end, it was nice to work on something different outside my main specialization and to work on a **character in 2D with some animating.**





Sub-Specialization
2D art Reflection

What did go well:

- I made something that is mostly out of my specialization for the project, and an experiment that is mostly out of my expertise.

What could go better:

- The style was something that didn’t match with the game, so it would feel off.
- The idea although funny, wasn’t something that the promotion member was looking for, and this could’ve been better communicated.

Sub-Specialization sprint 2
Props

Props are intertwined mostly with the environment. They both overlap in some aspects and in some companies, the environment artist is also the props' artist, if needed.

In the sense of the game, the prop artist was mostly working on separate objects, from signs to benches that will fill up the zoo, like with my environment specialism, but more on a smaller scale.

For props, I made some models to show competence for variety and to help where possible.

Making poles that could connect bridges and be usable in Ali's enclosure. We chose that this was part of props, and later the props' artist went further on it.

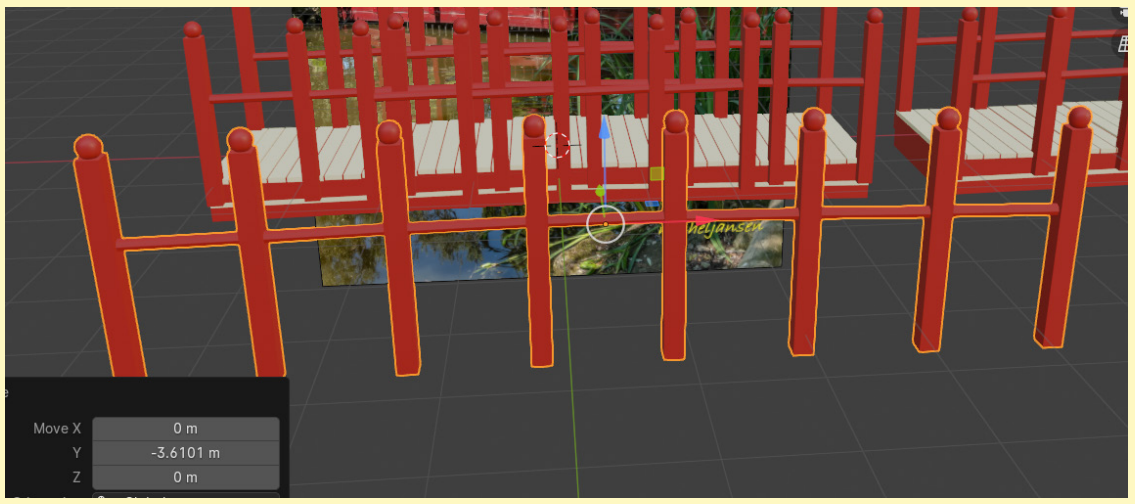
After talking with design, they liked the idea of a big pole for Ali to stand on, so I made some iterations. I went with an Asian theme, which came out of research about red pandas and their Chinese heritage. Many buildings use red and yellow.

The purpose of these poles outside for Ali to stand on is to have bridges connecting to each other, so it also needs to have something to make the bridge connectable. Two of the iterations used attachments.

After some chatting with the project manager and the design team about the gameplay, it would be something that could be looked at later on.

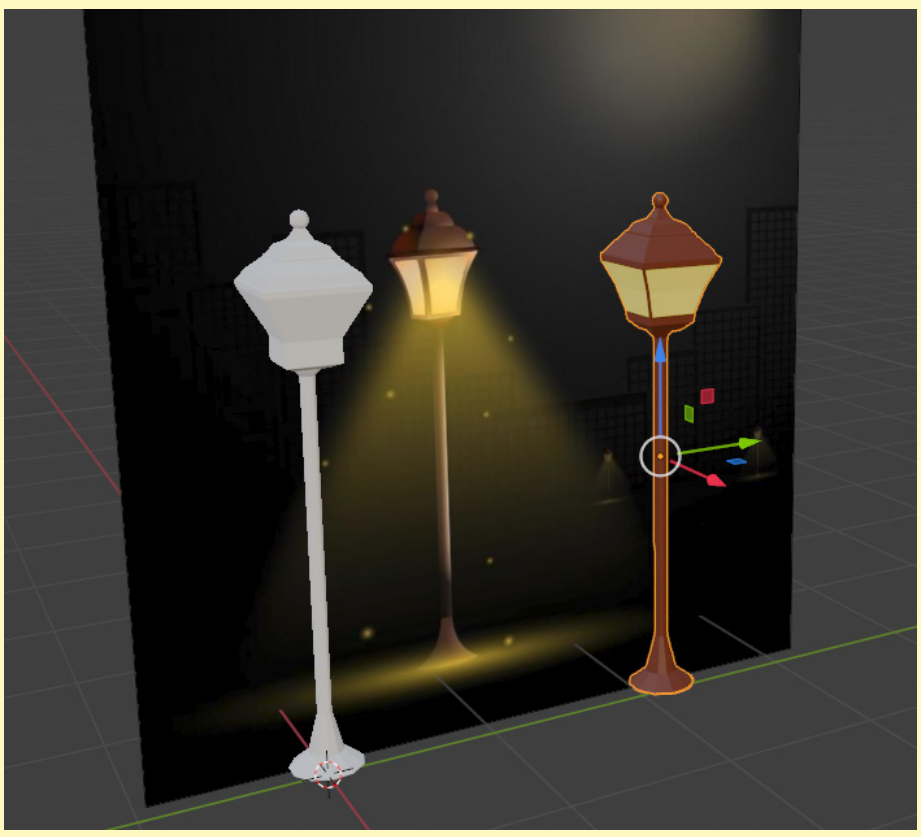
Sub-Specialization sprint 3
Props

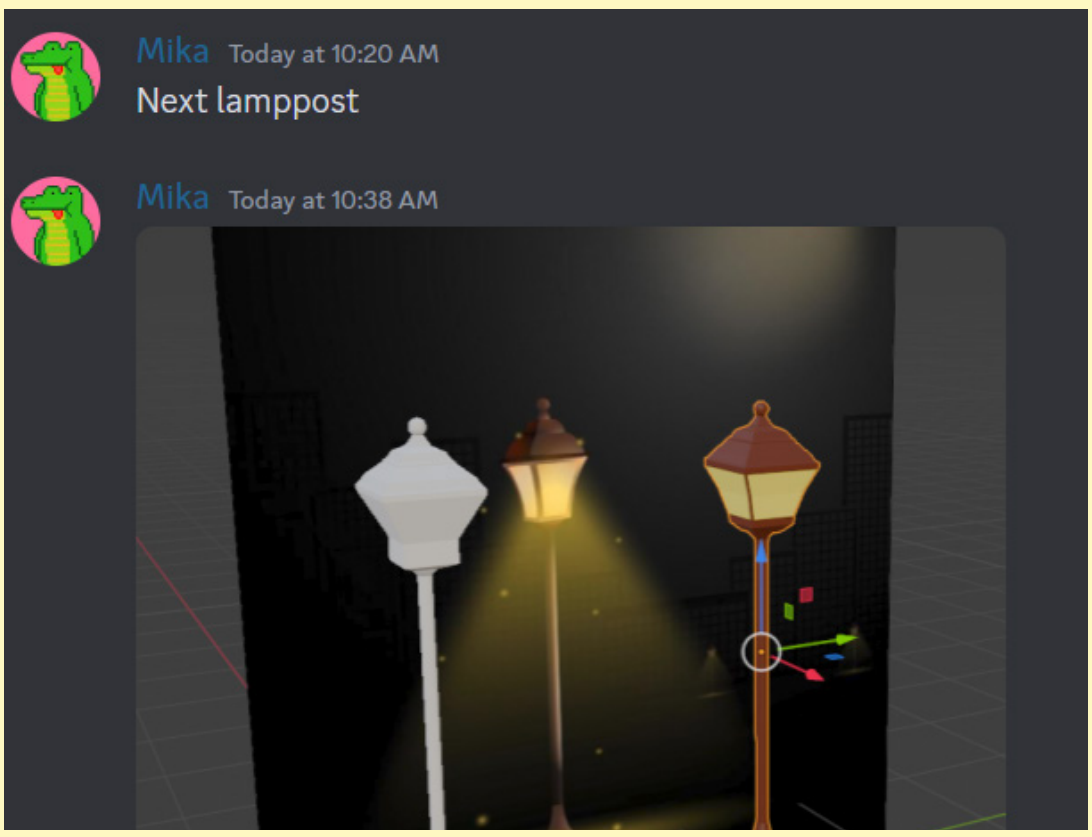
Making a Chinese fence. I had to watch out to not use too many polys.
The spheres on top had to be downsized else you would use many polys.



Update for game design: it is also usable for a fence.

With good music and motivation, I worked on the lamppost pretty quickly. One note I got was to separate the yellow part to make it a light object in Unity, but it was not really quick. Update for game design: it is also usable for a fence.





Sources Bridge and lantern: page 76 - sources 67-68

Sub-Specialization props Reflection

What did go well:

- I could make most props the way people wanted them, like in the references.
- I communicated my results well with others.

What could go better:

- The communication in the team could go better, as I said previously, and we all use the online list better so we know what everyone is making.
- While using the references and creating something that gameplay wanted, I could also make personal changes if I thought it was needed. For now, it was good, and I liked the results, but I could make more personal choices, which I did more in my main specialism.

Overall reflection and learning moments

Looking back at the whole project, I can say that I am really happy about the process and what I have made so far

About Environment artist:

I learned how to create a game environment using an art style that I haven't really worked with before on the game project and learned, most importantly, how to create a game world that looks visually good based on my personal opinion and that of others.

I did much research into different ways things could be designed and provided for, like enclosures. Furthermore, I shared my knowledge with members of the project like the art team, so we could share information and ideas and work together.

One of the main things that I have learned during the project was how to make models actually work. Not just looking nice, but how the vertices should be connected. Having faces of a maximum of 3-4 instead of 12 (because that makes a mess like bugging faces!)
In games, this can cause major issues and ruin the experience of players.

This is something that is most important for environment artists since you can be tasked with making the majority of the game world, and having issues like faces that are bugging could obstruct the player's experience with the game

I learned the importance of the environment artist as written in the beginning of the portfolio. Without the environment artist, the Crazy Croc game would consist of white blockouts with added props, foliage and shaders by art members, which in some instances can also be classified as an environmental artist.

One of the core aspects of being an environmental artist that I learned during the project is to hold others opinions in account.
You have a major role in how the world will take shape, and you should do that by taking the team and others into account; otherwise, you just create a game for yourself. Holding votes and showing much of my work with improvements and sketches gave others a good idea what could work. Here, I learned to think for myself, but others also have an effect on the work.

I learned how to express a certain emotion through my own work.
The enclosures had many ways to be designed, from the walls to the rocks. I found ways to make enclosures have a positive feel where the animals could live peacefully and attract guests instead of having a threatening design that feels like a prison and questionable what type of zoo this is.

About sub-specializations:

Outside the main specialization, one of my minor learning moments was the programming of the bridge. While it might not be used in the end, I could still program something cool that might have worked for quick prototyping or a game where the world is made of procedural stuff. I created my own workflow for coding using ChatGPT, which optimized my work efficiency.

I also learned to also work on props and foliage, and some models also made it into the end game. Working on props and foliage also extended my knowledge of the art style and how I could continue with the environment overall.

The 2D art gave me a nice break from the 3D world, and I also learned something about animation and characters. While not a major learning moment, it is still a nice addition to have.

Other Learning moments:

- Working in a big team, with everyone having their own specializations. I am learning to communicate better in a big team and also take responsibility for my own performance, which could affect the game.

-Learning to manage work with others, like using Google Documents to use checkmarks to know who is doing what.

-Working with the sprint system. The sprints taught me to have a big task separated into four smaller ones. From researching to making the finishing touches.

-Overall improvement in using Blender and other software like Illustrator. With tutorials and the help of others, I learned new things in Blender but also in Illustrator, for example, with making the path textures.

Overall reflection and learning moments

Feedback session art team Sprint 4

Giving and getting tips and tops from each other. Written by Marit

Ajlin
Tip: Needs to be more proactive. Beter inschatten wanneer het “serieuze” tijd is om te werken. Niet zo onzeker over het maken van models. Beter opletten op eindmodels.
Top: Handsome baby. Zeer direct. Geduldig om veel over Blender te leren. Kan goed sfeer maken (goede ijsbreker). Altijd het lichtpunt van ons team. Good job on learning and talking English in a multilanguage team. Goede communicatie. Werkt goed vanuit thuis.

Evi
Tip: Niet zo onzeker over models. Beter letten op aangeven welke taak je mee bezig bent (of niet). Top: Goed Blender geleerd. Goede communicatie tussen teams vanuit Evi. Vraagt vaak feedback. Veel research en schetsen gemaakt over props, goed ingeleefd in haar specialisatie. En je was op tijd. Gaat er echt voor.

Mika
Tip: Heeft soms obsessies en hyperfocusses. Is soms onoverzichtelijk. Vaker vragen om specifieke hulp? Sometimes take it a bit slower. Better focus on current tasks. Doing more research (and sketches) before going into something. Feels like wants to work from home often, almost pushing it.
Top: Heel veel gedaan. Heeft soms obsessies. Improved upon modelling (in his own way). Working well from home and good communication. Listened and learnt from feedback (like doing research and sketching)

Wes
Tip: Too negative, and this brings down the whole team spirit. Can go more out of comfort zone (3D modelling). Many assumptions. When Wes is asked for feedback, often he says is “ok what do you think?”. Maybe give your own feedback first, and afterwards ask the important question “what do you think”. You put too much effort into teaching people things, especially people that don’t want to learn.
Top: Great illustrations, very helpful. Proactive and takes up tasks. Real devotion to his specializations and artworks. Good job on showing artworks. Good job developing an artstyle that he hasn’t worked in yet. Ant with green beanie. Good looks. <- Wes. But hey, at least he tries.

Alyssa
Tip: Asking for feedback (in the beginning). Communication about when you come to school/if not coming. Overcomplicating feedback, be more direct and to the point.
Top: Finished tasks in time (proactive). Asking for feedback (improved towards the end). Good job on achieving new skills. Thicc characters. Nice job portraying the personalities through the textures+models. Helpful and supportive.

Marit
Tip: Could be stricter, should put my foot down more. Think more carefully about words used online (esp. to other teams, niet kortaf).
Top: Improved leadership role. Bringing attention to the group. Not strict, but better at putting foot down. Involved with team, and personal too. Scrum and tasks were very clear. Took opinions into account. Teambuilding was fun and good. Supportive. Keeps asking people about tasks (team involvement). (Proactive)

Aleksi
Tip: Stop working at night. Be a little bit more open about troubles. Bit better communication. Better documentation. More ice skating.
Top: Hard work. Without you probably wouldn’t have been integrated. Great work on shaders and grass. Helpful and informative. Good ice skater.

Joris
Tip: Smoke less. Could be stricter, and just give your opinion. Maybe get out of your comfort zone a bit.
Top: You’re always nice. Good at receiving feedback and making iterations upon that. Very nice animations, they are high quality. Good teamwork (with Alyssa good duo).

Feedback for art team:

Sketches don’t need to look good. Be more strict and open to gameplay, maybe talk more to gameplay about it.

Feedback after project and session:

Looking back at the project, I can say that I have learned a lot, but there is still much to learn.

One of the most important things I need to learn is to not get obsessive about certain tasks and manage everything better.
Doing a lot feels good, but sometimes taking things slower and working longer on certain tasks can also work, like making a drawing before making a 3D model. This is something I luckily did more of later in the project.

Hypothetical Further work

The work on the game has stopped after the fourth sprint, but how could my work be expanded hypothetically?

For Environment and the done research, there is a lot of room to work further on it like making the background enclosures functionable in the researched style and expanding on the zoo. There is room for many different animals, and you could research further on specific animals to see what their enclosures would look like functionally from the inside as well, not just from farther away or inaccessible, which is what I did for the background enclosures.

Outside the enclosures, there is room to improve the overall world in which it takes place.

Will the buildings be enterable for Ali? How would a different theme look like for the next part of the zoo?
What would the restaurant look like from the inside, and what must the player see to do something inside?

Sources

The sources will refer to my used sources and also contain my own links to my made material.
It also goes about the trustworthiness of important sources, what sources contain my importance, and what my use case is for, like just using an image or text content, etc.

Sprint 1

1: Wikipedia contributors. (2022, 23 december). Environment artist. Wikipedia. Geraadpleegd op 12 januari 2024, van https://en.wikipedia.org/wiki/Environment_artist
Moodboards: (6-nov-2023) (pagina 5)

About: Wikipedia is an online encyclopedia with many different pages with information on different topics. Almost everyone can work on the pages and get to know each other to become a more credible source, but on the downside, you don't exactly know who and what is written by whom. The sources that are used on Wikipedia are displayed and could be checked; in this case, Wikipedia used Unreal Engine which has specialism and authority in the gaming industry with many researchers, developers and designers improving on the software every day and is one of the lead game engines.
My usage: I used the source for my understanding of the meaning of an environment artist to better understand the chosen role for the game.

2: IO Interactive. 2022, 29 juli). What does an environment artist do? [Video]. YouTube. Geraadpleegd op 17 januari 2024, van https://www.youtube.com/watch?v=Bk-3SLzi9hlo

About: Io Interactive has multiple studios that have big teams with unique specializations. Under their wing are multiple environmental artists and specialists that have multiple years of experience and have worked on big games like Hitman 6 and 3, and because of this, they have a certain authority in the field.
My usage: I used the source to get a better understanding of the environmental artist role and how it is in correlation with the other sources, so I could see what is similar and what is different.

3: Riot Games. (2018, 13 december). So you wanna make games?? | Episode 4: Environment Art [Video]. YouTube. Geraadpleegd op 17 januari 2024, van https://www.youtube.com/watch?v=37LVhP15zGw

About: Riot Games is a noted company that has set its place in the gaming industry, like Valorant and their biggest game, League of Legends.
Outside of making games, they work on animations and other creative work. In the video, they use different artists with experience over different projects.
My usage: I used the source to get a better understanding of the environmental artist role and how it is in correlation with the other sources, so I can see
What is similar, and what is different? In addition, I used Riot Game's examples for describing my role during the creation of the game.

Moodboards: (6-nov-2023)

4:Zoo structures | Animal enclosures for zoos | Base structures. (2022, 15 februari). Base Structures. Geraadpleegd op 6 november 2023, van https://www.basestructures.com/product/zoo-structures/

About: Zoo structures is a company that specializes in creating solid enclosures for zoos. They know how to design and create them and are a credible source to take inspiration from.
My usage: I want to find real-life examples of how things can be made so that I can take inspiration and implement it in my designs. I used the image for my moodboard.

5:Rotterdam Zoo: one of Europe most beautiful zoos. (z.d.). Rotterdam Zoo. Geraadpleegd op 6 november 2023, van https://diergaardeblijdorp.nl/en/impact-areas/himalayan-peaks

About: Blijdorp is a zoo that has many years of experience with taking care of both animals and guests. They are a credible source to find information from like how a zoo is designed to how to take care of animals.
My usage: I read information about Red Panda's and saw how their enclosures looked like. I used the image for my moodboard.

6:Red pandas they seem cuddly but they are not. (z.d.). kcra. Geraadpleegd op 6 november 2023, van https://www.kcra.com/article/red-pandas-they-seem-cuddly-but-theyre-not/9617137

About: KCRA is a media source from the usa that is told by media bias fact check to be low on bias on story telling. The page is about Red pandas and there negative side and how they can behave.
My usage: I used information on the page to look at Red panda's but mostly used the source for the image in my moodboard.

7:Fine cable mesh fabric allows open view into the animal enclosure. (z.d.). Geraadpleegd op 6 november 2023, van https://www.walcoom.com/products/architecturalmesh/stainless-steel-rope-mesh/animal-enclosure.html

About: Walcoom is a credible source for creating wire mesh products. The page i about stainless steel rope mesh for usage as a flexible barrier for animal enclosures.
It can be used to make a visible bridge where animals and humans can look through
My usage: I used the source as inspiration to look at an alternative for a basic bridge and gave the idea that this might be useful for Ali's enclosure. I used the image of the tigers also for my moodboard.

8:DeLadysigner. (2019, 8 november). Red Panda Habitat | Speed Build | Planet Zoo | Meilin Zoo | Ep. 4 [Video]. YouTube. Geraadpleegd op 6 november 2023, van https://www.youtube.com/watch?v=PPK7ftLHZSs

About:A video of how a Red Panda habitat is created. The video was made by a YouTuber who has experience in creating something in Planet Zoo the game and gave inspiration to create an enclosure.
My usage: also used an image of the source for the moodboard.

Sources

Sprint 1

Moodboards: (6-nov-2023)

9:Smithsonian's National Zoo & Conservation Biology Institute. (2020, 22 september). How to care for red pandas. Smithsonian's National Zoo and Conservation Biology Institute. Geraadpleegd op 6 november 2023, van https://nationalzoo.si.edu/animals/news/how-care-red-pandas

About: The source talks about how they take care of Red Panda's. The source spreads news about animals and also conducts research to educate people.
My usage: I used the page as inspiration to think about Red Panda's and used an image for the moodboard.

10:Zoo enclosures Archives - base structures. (z.d.). Base Structures. Geraadpleegd op 6 november 2023, van https://www.basestructures.com/news/case%20study-product/zoo-enclosures/

About: A source that talks about robust enclosures and how they use their material to maximize space for animals.
My usage: I used the source for the design of how they make enclosures and the image of the enclosure.

11:Contributors to Zoo 2: Animal Park Wiki. (z.d.). Enclosures. Zoo 2: Animal Park Wiki. Geraadpleegd op 6 november 2023, van https://zoo2animalpark.fandom.com/wiki/Enclosures

About: The enclosures in a game called Zoo 2: Animal Park.
My usage: I used the source for the image and inspiration for enclosures.

12:Snaith, K. (2021, 7 juni). Let's Build a Zoo is Basically Theme Park With Animal Splicing. gamespew. Geraadpleegd op 6 november 2023, van https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.gamespew.com%2F2021%2F06%2Flets-build-a-zoo-is-basically-theme-park-with-animal-splic-ing%2F&psig=AOvVaw0WDR2N-Z4HrrX79vLWM8EPA&ust=1699352151282000&source=images&cd=vfe&opi=89978449&ved=0CBEQjRxqFwoTCJi1oJySr4ID-FQAAAAAdAAAAABAQ

About: Information how enclosures work in Zoo 2.
My usage: I used the source to look at enclosures in games and the image for the moodboard.

13:Maysonet, Z. (2018, 28 december). A new home for red pandas at Connecticut's Beardsley Zoo. Connecticut Public. Geraadpleegd op 6 november 2023, van https://www.ctpublic.org/environment/2018-12-28/a-new-home-for-red-pandas-at-connecticuts-beardsley-zoo

About: Source that talks about the new home of Red pandas.
My usage: I used the source for the image.

14:Allison, P. R. (2022, 31 oktober). Will we ever. . . live in city-sized buildings? BBC Future. Geraadpleegd op 6 november 2023, van https://www.bbc.com/future/article/20221028-will-we-ever-live-in-city-sized-buildings

About: A story from the BBC about buildings the size of cities.
My usage: I used the source to look at how the buildings look and how they use modern style with green. I used one of the images for the moodboard.

15:Cecco, L. (2020, 23 september). Canadian cities take wooden skyscrapers to new heights. the Guardian. Geraadpleegd op 6 november 2023, van https://www.theguardian.com/cities/2019/jul/22/canadian-cities-take-wooden-skyscrapers-to-new-heights

About: A story about the usage of wood for buildings.
My usage: I used the source on how they use wood for buildings and one of the images for my moodboard.

16:City Planning Building: 22 Reade Street - Department of Citywide Administrative Services. (z.d.). nyc.gov. Geraadpleegd op 6 november 2023, van https://www.nyc.gov/site/dcas/business/dcasmanagedbuildings/city-planning-building.page

About: Buildings city planning in New York.
My usage: I used the source for inspiration in buildings and the image in my moodboard.

17:Sánchez, D. (2021, 3 maart). Öhringen Petting Zoo / Kresings Architektur. ArchDaily. Geraadpleegd op 6 november 2023, van https://www.archdaily.com/775672/ohringen-petting-zoo-kresings-architektur

About: Images of a zoo that uses a wooden architecture.
My usage: I used the source of inspiration for wooden buildings. I also used one of the images for my moodboard.

18:Baldwin, E. (2022, 31 mei). Safari architecture: 7 wild zoos and animal parks. Journal. Geraadpleegd op 6 november 2023, van https://architizer.com/blog/inspiration/collections/safari-architecture/

About: The page talks about enclosures for different animals.
My usage: I used the source as inspiration for a modern design and one of the images for my moodboard.

19:D'Aprile, M. (2022, 17 oktober). Chicago's Lincoln Park zoo raises expectations for public space. Metropolis. Geraadpleegd op 6 november 2023, van https://metropolismag.com/projects/chicagos-lincoln-park-zoo-raises-expectations-for-public-space/

About: A topic about Chicago's Lincoln Park Zoo that raises expectations for public space.
My usage: I used the source for the image for my moodboard.

Sources

Sprint 1

Research maps: (8-nov-2023) (pagina 6-7)

20:Dino Zoo Transport Simulator on Steam. (z.d.). Steam. Geraadpleegd op 6 november 2023, van https://store.steampowered.com/app/1155420/Dino_Zoo_Transport_Simulator/

About: A game about transporting dinosaurs.
My usage: I used the source to look at how they use enclosures in the game and an image to show in my research.

21:Yamada, M. (z.d.). New Horizons map inspiration. Pinterest. Geraadpleegd op 8 november 2023, van https://nl.pinterest.com/ruberduckycharms/new-horizons-map-inspiration/

About: An image of an Animal Crossing map
My usage: I used it as inspiration for how to make a layout and the style. I used an image for my research.

22:D'Anastasio, C. (2020, 9 april). I am not at all relaxed by "Animal Crossing: New Horizons". WIRED. Geraadpleegd op 8 november 2023, van https://www.wired.com/story/animal-crossing-i-am-not-relaxed/

About: A text about Animal Crossing.
My usage: I used the source for one of the images and analyzed the style.

23:Planet Zoo on Steam. (z.d.). Steam. Geraadpleegd op 8 november 2023, van https://store.steampowered.com/app/703080/Planet_Zoo/

About: A page about Planet Zoo where you make your own zoo.
My usage: I used the source to look how you can make enclosures in the game and an image for my research.

24:Kim, H., & Chisolm, D. (2022b, oktober 5). Slime Rancher 2 Tips for new players: avoiding the tarr, plort pricing, and more. GameSpot. Geraadpleegd op 8 november 2023, van https://www.gamespot.com/articles/slime-rancher-2-tips-for-new-players-avoiding-the-tarr-plort-pricing-and-more/1100-6508028/

About: A text about Slime Rancher 2 tips.
My usage: I used the source for looking how they use enclosures. I used an image for in my research.

25:Stretch, A. (2022, 25 september). Slime Rancher 2 All Slimes Guide. TechRaptor. Geraadpleegd op 8 november 2023, van https://techraptor.net/gaming/guides/slime-rancher-2-all-slimes-guide

About: A guide about Slime Rancher 2.
My usage: I used the source for an image in my research.

26:Tb. (2021, 29 oktober). The prison. HOLOGATE. Geraadpleegd op 8 november 2023, van https://www.hologate.com/games/the-prison/

About: A page for the game The Prison | Hologate.
My usage: I used the source how they use a dark environment and an image for my research.

27-28.1: Zoo Simulator on Steam. (z.d.). Steam. Geraadpleegd op 8 november 2023, van https://store.steampowered.com/app/2129220/Zoo_Simulator/

About: A page for Zoo Simulator.
My usage: I use the source for the image in my research.

Sources

Inspiration modelpack: (9-nov-2023)

29:Manufacturer, W. H. (2023, 7 april). Prefab Wooden Villa. Wooden Home Manufacturer. Geraadpleegd op 9 november 2023, van https://woodenhomeindia.com/home/f/prefab-wooden-villa

About: A page about a prefab wooden villa.
My usage: I used the source for the villa image and the usage of wood in architecture.

30:Upright Wooden Wall – persoonlijk behang van de hoogste kwaliteit – Photowall. (z.d.). Photowall. Geraadpleegd op 9 november 2023, van https://www.photowall.nl/upright-wooden-wall-behang

About: A page about a wooden background for your house.
My usage: I used the source for the image of the wood.

31:blueringmedia. (z.d.). Wooden houses in different colors Vector image. VectorStock. Geraadpleegd op 9 november 2023, van https://www.vectorstock.com/royalty-free-vector/wooden-houses-in-different-colors-vector-6008788

About: A page with images of wooden houses.
My usage: I used the source for the houses as inspiration for colored wood.

32:Tovar, E. (2023, 15 september). Creating decorative, Long-Lasting facades with natural wood and technology. ArchDaily. Geraadpleegd op 9 november 2023, van https://www.archdaily.com/1000184/creating-decorative-long-lasting-facades-with-natural-wood-and-technology

About: Information about the usage of wood in combination with technology.
My usage: I used the source for inspiration to apply wood with buildings in a modern way.

33:Montjoy, V. (2022, 21 december). The biophilic response to wood: Can it promote the wellbeing of building occupants? ArchDaily. Geraadpleegd op 9 november 2023, van https://www.archdaily.com/974790/the-biophilic-response-to-wood-can-it-promote-the-wellbeing-of-building-occupants

About: A text about the usage of wood and its effect on wellbeing.
My usage: I used the source for inspiration of wood usage and an image in my modelpack.

34:Lardomita, S. (z.d.). Wooden Signs, Custom wood signs, camping sign, outdoor signs, Custom wood sign, carved Wood sign, Eagles, Custom Wood Sign Outdoors, Falcon - Etsy Netherlands. Etsy. Geraadpleegd op 9 november 2023, van https://www.etsy.com/nl/listing/685719580/wooden-signs-custom-wood-signs-camping

About: Wooden sign pictures.
My usage: I used is as inspiration for the usage of wood and for in my modelpack.

35:Ryan. (2023, 21 december). Guide to buying Timber & Wooden Playground equipment. Sovereign Play. Geraadpleegd op 9 november 2023, van https://sovereign-playequipment.co.uk/guide-to-buying-timber-wooden-playground-equipment/

About: A page about timber for a playground.
My usage: I used the source of an image in my modelpack.

36:Poster, foto Stone Wall Texture - koop op EuroPosters.nl. (z.d.). Europosters. Geraadpleegd op 9 november 2023, van https://www.europosters.nl/stone-wall-texture-f169137845

About: A page for a wall texture.
My usage: I used the source for the image in my modelpack.

37:Prefabricated Faux Stone Fence 0008 - Royal Foam US. (2021, 5 december). Royal Foam US. Geraadpleegd op 9 november 2023, van https://royalfoam.shop/products/fence-0008

About: A page for a stone wall.
My usage: I used the source for inspiration for potential walls in the enclosures. I also used the image in my modelpack.

38:Medieval Stone House Poitiers France Stock Photo 97822238 | Shutterstock. (z.d.). Shutterstock. Geraadpleegd op 9 november 2023, van https://www.shutterstock.com/image-photo/medieval-stone-house-poitiers-france-97822238

About: A page with a stone house image.
My usage: I used the image as inspiration for a rock style and the image for my modelpack.

39:Artsolute. (z.d.). Artsolute Natural Solid Stone Table Lamp with One-of-a-Kind Crystal Texture, Small Accent Lamp with 3 Colors Dimmable LED, Unique Lamp for Bedroom Living Room, Cuboid White. Amazon. Geraadpleegd op 9 november 2023, van https://www.amazon.com/Phiestina-Handcrafted-Natural-Calcite-Dimmable/dp/B08KJ9BLL9?th=1

About: A page at Amazon for a lamp.
My usage: I used the source for the cool lamp stone design that could be used for in the zoo.

40:The Stone Park in Rosendal. (z.d.). Museums & Galleries | Rosendal | Norway. Geraadpleegd op 9 november 2023, van https://www.visitnorway.nl/listings/the-stone-park-in-rosendal/9306/

About: A post about a stone park that lays in Rosendal.
My usage: I used the source as inspiration for the usage of the stone and the image in my modelpack.

Sources

Sprint 1

Inspiration modelpack: (9-nov-2023)

41:Hunt, T. (2018, 23 januari). 15 Elegant Stone Wall Interior Designs - Decoratoo. Pinterest. Geraadpleegd op 9 november 2023, van https://nl.pinterest.com/pin/534943261990246192/

About: A page with an interesting stone interior.
My usage: I used the source for using stone in interiors and maybe exteriors. I also used the image in my modelpack.

42:Stone Colors RP. (2022, 24 augustus). Stone Colors RP. Facebook (Meta). Geraadpleegd op 9 november 2023, van https://www.facebook.com/decorcolorsrp/?paipv=0&eav=Afb26E9odQ-yQAnlm-oElaPyFmWKxv4aemmoYNQDoDWPytHD4_S4CohHqSqmY3iv0g4&_rdr

About: A page with colored stones.
My usage: I used the source for an image with colored stone for inspiration on color usage in rocks and in my modelpack.

43:Burden, A. (2017, 14 augustus). Focus Photography of stones near body of water. Unsplash. Geraadpleegd op 9 november 2023, van https://unsplash.com/photos/focus-photography-of-stones-near-body-of-water-niSXrcg3Gk8

About: An image of rocks with water.
My usage: I used the source for inspiration for using rocks in the game near water, and the image is used in the modelpack.

44:Lazarovic, S., & Lazarovic, S. (2021, 28 januari). Why “Solarpunk” gives me hope for a more sustainable future. YES! Magazine. Geraadpleegd op 9 november 2023, van https://www.yesmagazine.org/environment/2021/01/28/climate-change-sustainable-solarpunk

About: A story about how solarpunk can shape a good future.
My usage: I used the source to show how optimistic the future could be with solarpunk. I also used an image in the modelpack.

45:Freinacht, H. (2023, 17 juni). 10 ways to thoroughly “Solarpunk” Society - Hanzi Freinacht - medium. Medium. Geraadpleegd op 9 november 2023, van https://medium.com/@hanzifreinacht/10-ways-to-thoroughly-solarpunk-society-6fac634b0197

About: A post about how solarpunk could be used in society.
My usage: I used the image in my modelpack.

46:Pang, K. (2023, 20 december). Famous Ancient Chinese buildings, Ancient architechture examples in China. China Highlights - Since 1998! Geraadpleegd op 9 november 2023, van https://www.chinahighlights.com/travelguide/architecture/examples.htm

About: A page with different ancient Chinese architecture.
My usage: I used the source for inspiration and one image for in my modelpack.

47:Chinese architecture. (z.d.). Chinasage. Geraadpleegd op 9 november 2023, van https://www.chinasage.info/architecture.htm

About: A post about Chinese architecture.
My usage: I used the source for inspiration in Asian architecture and one image for in my modelpack.

48:3D isometric building. (z.d.). Dribbble. Geraadpleegd op 9 november 2023, van https://dribbble.com/shots/22372484-3D-Isometric-Building

About: A post of a 3D isometric building with a surrounding.
My usage: I used the image for my modelpack and analyzation of low poly.

49:Jrueda, J. (z.d.). a cute little matte low poly isometric cherry blossom forest island, pink waterfalls, mist, lat lighting, soft shadows, trending on artstation, 3d render, monument valley, fez video game --q 2. Prompthero. Geraadpleegd op 9 november 2023, van https://prompthero.com/prompt/ba40bad06aa-midjourney-4-a-cute-little-matte-low-poly-isometric-cherry-blossom-forest-island-pink-waterfalls-mist-lat-lighting-soft-shadows-trending-on

About: An image of a low poly style with blossom trees.
My usage: I used the source for inspiration in low poly style and for in my modelpack

50:Andreas-Gkertsos. (z.d.). Cute Low Poly Tree package | CGTRader. CGTrader. Geraadpleegd op 9 november 2023, van https://www.cgtrader.com/forum/3d-model-showcase/cute-low-poly-tree-package

About: An image of a model of a low poly tree.
My usage: I used it for inspiration and for my modelpack.

51:Albrecht, P. (2023, 9 december). How to make low poly look good. Geraadpleegd op 9 november 2023, van https://www.gamedeveloper.com/design/how-to-make-low-poly-look-good

About: A post on how to use low poly good.
My usage: I used it as inspiration for the usage of low poly and one of the images in my modelpack.

52:Slik, T. (2023, 27 september). Cute low poly scene by TorinSlik on DeviantArt. DeviantArt. Geraadpleegd op 9 november 2023, van https://www.deviantart.com/torinslik/art/Cute-Low-Poly-Scene-984911478

About: An image of a low poly terrain.
My usage: I used the image as a source for inspiration in my modelpack.

53:Hinault, V. (z.d.). Solarpunk House. Reddit. Geraadpleegd op 9 november 2023, van https://www.reddit.com/r/solarpunk/comments/15x3w23/solarpunk_house_by_vaiana_hinault/

About: A picture of a solarpunk house.
My usage: I used the source for my modelpack.

54:Delpin, nicolas. (2022, 4 februari). Solarpunk House. DeviantArt. Geraadpleegd op 9 november 2023, van https://www.deviantart.com/nicolasdelpin/art/Solarpunk-House-905972953

About: An image of a solarpunk house.
My usage: I used the source for my modelpack.

Sources

Sprint 1

Art direction: (13-nov-2023)

55:Novák, P. (2017, 8 juli). Low Poly Animals. Behance. Geraadpleegd op 13 november 2023, van https://www.behance.net/gallery/54558117/Low-Poly-Animals

About: A post with images about low poly animals
My usage: I used the images as inspiration for me and the team, and two of the images are in the portfolio.

Modular buildings: (17-nov-2023)

56-57.1:Harrisson, A. (z.d.). Assassin's Creed Odyssey - Wood Public Buildings, Alexis Harrisson. ArtStation. Geraadpleegd op 17 november 2023, van https://www.artstation.com/artwork/YXRr6

About: Buildings that are made and used in the Assassin's Creed Odyssey.
Alexis Harrisson is a 3D artist at Ubisoft. Ubisoft has over two decades of game development knowledge and can be seen as an authority in the field.
My usage: I used the images as inspiration for me and the team, and two of the images are in the portfolio.

58:Sagredo, R. (2023, 18 april). Markthalle Panzerhalle / Smartvoll. ArchDaily. Geraadpleegd op 17 november 2023, van https://www.archdaily.com/900597/markthalle-panzerhalle-smartvoll/5b7c93fcf197c-%20c6ef2000332-markthalle-panzerhalle-smartvoll-model

About: Images of reusing metal in interiors.
My usage: I used the source for inspiration in modularity and for research.

59:Reptile House □ □ □Beryl Zoo□. (z.d.). Reddit. Geraadpleegd op 17 november 2023, van https://www.reddit.com/r/PlanetZoo/comments/f2zugp/reptile_house_beryl_zoo/

About: Images of a zoo made in a game called Planet Zoo.
My usage: I used the source as inspiration for building usage in a different game and the images for my research.

Procedural bridge:

60:Loya. (2022, 29 januari). Procedural bridges [Video]. YouTube. Geraadpleegd op 13 november 2023, van https://www.youtube.com/watch?v=NqifoKAuSIs

About: A showcase of a procedural bridge that changes with the XYZ of the user.
My usage: This reference was my main inspiration to do something similar, but with the style of the game.

61:ChatGPT. (z.d.). Geraadpleegd op 13 november 2023, van https://chat.openai.com/

About: **ChatGPT is the most famous AI chatbot since the recent AI hype.**
My usage: **I used ChatGPT to support me with coding problems and to test out what the future of coding would look like with new possibilities.**

Own video's:
https://youtu.be/7zl2kg_j6PY?si=y3KnG1nZHM-2GmIB
https://www.youtube.com/watch?v=7zl2kg_j6PY
https://www.youtube.com/watch?v=PIkdrk5FBRw

Sources

Sprint 2

Foliage Rope:

62:PIXXO 3D. (2023, 24 maart). Blender: Make rope fast & easy ! [Video]. YouTube. Geraadpleegd op 28 november 2023, van https://www.youtube.com/watch?v=aMn1EeORuhI

About: A tutorial on how to make a rope in Blender.
My usage: I used the tutorial on how to make a model twist with a modifier instead of doing it by hand.

Moodboard rocks: (23-nov-2023)

63: Games, P. (2017, 24 september). Low Poly Rocks Pack. OpenGameArt.org. Geraadpleegd op 23 november 2023, van https://opengameart.org/content/low-poly-rocks-pack

About: A pack of low poly rocks.
My usage: I used the image as inspiration and in my moodboard.

64: Low Poly Vector Illustration of a rock. (z.d.). Shutterstock. Geraadpleegd op 23 november 2023, van https://www.shutterstock.com/image-vector/low-poly-vector-illustration-rock-1083851657

About: Rock illustration in low poly.
My usage: I used the image as inspiration and on my moodboard.

65: Urbański, R. (z.d.). Lowpoly Rock. Dribble. Geraadpleegd op 23 november 2023, van https://dribbble.com/tags/lowpoly-rock

About: Rock illustration in low poly.
My usage: I used the image as inspiration and on my moodboard.

65.1: Download Low Poly Rock Transparent PNG on YELLOW Images. (z.d.). Yellow Images. Geraadpleegd op 23 november 2023, van https://yellowimages.com/images-360/products/low-poly-rock-yi3602501?ca=2_16

About: Image of low poly rock.
My usage: I used the image as inspiration and on my moodboard.

66: GoodStudio & GoodStudio. (z.d.). Polygonal rocks Geometric stones with angular vector image. VectorStock. Geraadpleegd op 23 november 2023, van https://www.vectorstock.com/royalty-free-vector/polygonal-rocks-geometric-stones-with-angular-vector-40702700

About: Image of a rock.
My usage: I used the image as inspiration and on my moodboard.

Sprint 3

Chinese fence and bridge image: (4-dec-2023)

67: Jansen, M. (z.d.). Chinese tuin; Blijdorp Zoo Rotterdam by MicheljansenFotografie — YouPic. Youpick. Geraadpleegd op 4 december 2023, van https://youpic.com/image/13370559/chinese-tuin-blijdorp-zoo-rotterdam-by-micheljansenfotografie

About: Image of Chinese bridge.
My usage: Used as a reference for a 3D model of an Asian bridge and fence.

Lantern image: (4-dec-2023)

68: Street light in big city vintage style night romance of metropolis bright full moon in sky street lighting at night realistic. (2023, 21 juli). Freepik. Geraadpleegd op 4 december 2023, van https://www.freepik.com/premium-vector/street-light-big-city-vintage-style-night-romance-metropolis-bright-full-moon-sky-street-lighting-night-realistic-vector-illustration_55009674.htm

About: An image of a streetlight.
My usage: I used it for reference on a 3D model I made.

Procedural path:

Procedural path (self made): https://youtu.be/tv5g1VnkmSk

69: Used tutorial procedural path (12-dec-2023): Default Cube. (2022, 9 maart). Turning ANYTHING into rocks - blender geometry nodes [Video]. YouTube. Geraadpleegd op 12 december 2023, van https://www.youtube.com/watch?v=QA13LPCZ3dM

About: A blender tutorial that shows the process of how to create procedural paths. CGmatter is a known YouTuber who has helped thousands of people with software like Blender. His work is valid and credited by different Blender learners. On his official Patreon, he has over 400 paid members that take lessons from him.
My usage: I used the tutorial to create my own procedural path with my own layout and sizes.

Sprint 3

Background building research: (7-dec-2023)

70: Sheridan, C. (2020, 13 mei). Use these official New Horizons wallpapers as your Zoom background for Eternal Island vibes. gamesradar. Geraadpleegd op 7 december 2023, van https://www.gamesradar.com/animal-crossing-zoom-background/

About: Tells about a collection of wallpapers from Animal Crossing. Connor Sheridan has a BA in Journalism and multiple jobs in the journalism industry.
My usage: I used it as inspiration how the game uses the background. I also used images for in my research.

71: Halo Infinite edited box art cover background wallpaper blank (no text or Chief) [3724×1862]. (z.d.). Reddit. Geraadpleegd op 7 december 2023, van https://www.reddit.com/r/halo/comments/pf0u17/halo_infinite_edited_box_art_cover_background/

About: Image in the style of Halo Infinite.
My usage: I use the image for inspiration for making backgrounds in a game. The construction is a form of a weenie and attracting the watcher.

72: Shaver, M. (2022, 24 maart). Kirby and the Forgotten Land Review: Mouthful of Deliciousness. Shacknews. Geraadpleegd op 7 december 2023, van https://www.shacknews.com/article/129416/kirby-and-the-forgotten-land-review-mouthful-of-deliciousness

About: The text is about Kirby and the Forgotten Land and the overall thematic and art usage in the game. My important takeaway from the source was the image, which shows a combination of modern architecture in combination with green usage, and how the bright and colorful aesthetic is in the game.
Morgan Shaver is a senior editor at Shacknews with multiple jobs as a text editor.
My usage: I used the information to inspire buildings for the game. One image is from the research.

73: Blxzy2x. (2021, 20 januari). This cost only a follow if u use ⍰⍰⍰ #fortnite. Pinterest. Geraadpleegd op 7 december 2023, van https://nl.pinterest.com/pin/580682945702962023/

About: Image from Fortnite.
My usage: Use the image in research as inspiration for how to use a background.

Normal map generator: (11-dec-2023)

74: Petry, C. (2014, 28 juni). NormalMap-Online. Geraadpleegd op 11 december 2023, van https://cpetry.github.io/NormalMap-Online/

About: A normal map generator that can be used by putting a texture in, which will then create a normal map from it.
Normal map generators are used by people in the gaming field, but also in fields like AR by companies like ARfected to create normal maps.
The website also delivers a technical explanation of normal maps.
My usage: I used the website to generate normal maps from my own textures.

Sprint 4

Research panda enclosure building: (14-dec-2023)

75: Pintos, P. (2019, 4 november). Panda House Observation Center / BIG. ArchDaily. Geraadpleegd op 14 december 2023, van https://www.archdaily.com/927643/panda-house-big

About: Image of a panda house observation center.
My usage: Use the image for in research as inspiration on how to make a building for the panda enclosure.

76: Construction, A. (2021, 27 april). New Panda Enclosures, Edinburgh Zoo - Ashwood Scotland Ltd | Construction and refurbishment. Ashwood Scotland Ltd | Construction and Refurbishment. Geraadpleegd op 14 december 2023, van https://www.ashwoodscotland.co.uk/new-panda-enclosures-edinburgh-zoo/

About: Image of a panda enclosure with a building.
My usage: Use the image for in research as inspiration on how to make a building for the panda enclosure.

77: Chengdu Panda Pictures, Panda photos at Chengdu Panda Base. (z.d.). China Discovery. Geraadpleegd op 14 december 2023, van https://www.chinadiscovery.com/panda-tours/chengdu-panda-photos.html

About: Images of pandas in China, including a building.
My usage: The building is used as inspiration for the panda enclosure, and the image is in the research.

78: Lomholt, I. (2021, 23 augustus). Adelaide Zoo Giant Panda Forest Building. e-architect. Geraadpleegd op 14 december 2023, van https://www.e-architect.com/australia/adelaide-zoo-giant-panda-forest

About: A building with a giant panda.
My usage: The building is used as inspiration for the panda enclosure, and the image is in the research.

Tutorial model simplifaction:

79: Ducky 3D. (2023, 6 februari). Simplify your model for better performance [Video]. YouTube. Geraadpleegd op 12 januari 2024, van https://www.youtube.com/watch?v=b-UQ6ye4jf0

About: A tutorial to reduce the polys on a model in Blender using limited dissolve.
My usage: I used the tutorial to reduce the amount of poly in the panda enclosure terrain.