

CT5016

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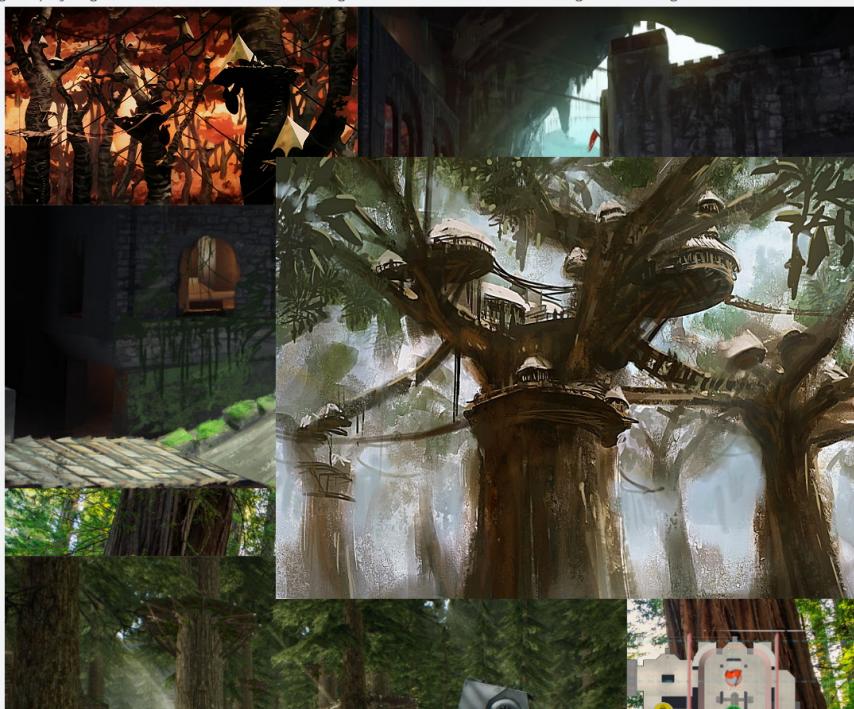
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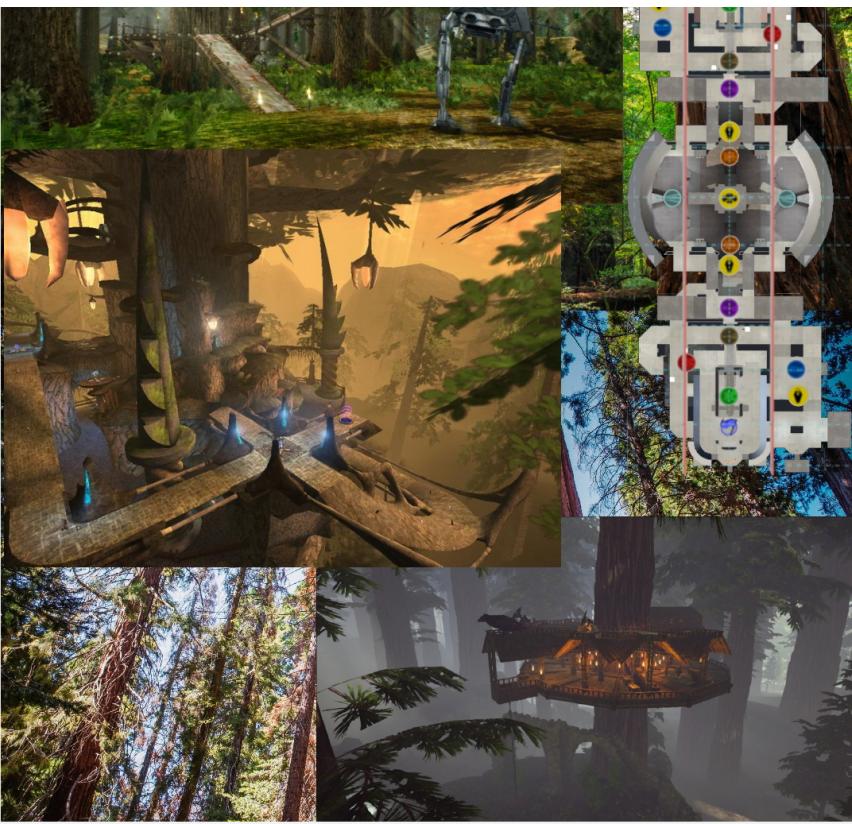
DM-TreetopTurmoil1

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Initial ideas

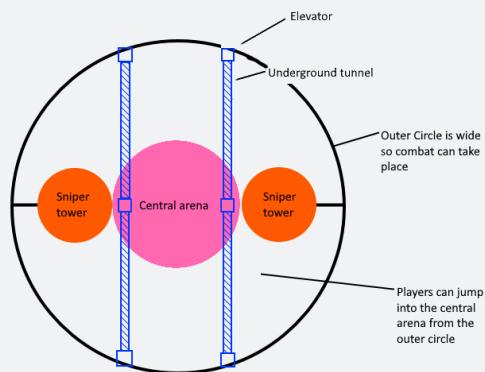
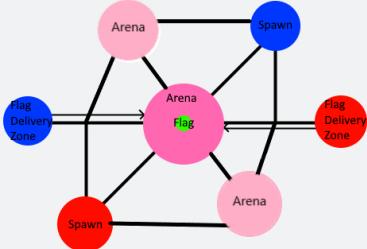
My initial idea for a map was largely inspired by treetop villages and houses such as those seen in the Endor map for Star Wars Battlefront 2 (2005), as well as a treetop map from a previous version of Unreal Tournament. I created a moodboard to get together some ideas for theming and how the setting could uniquely affect gameplay. High resolution versions of all the images in this wiki will be shared alongside the assignment and available on moodle.





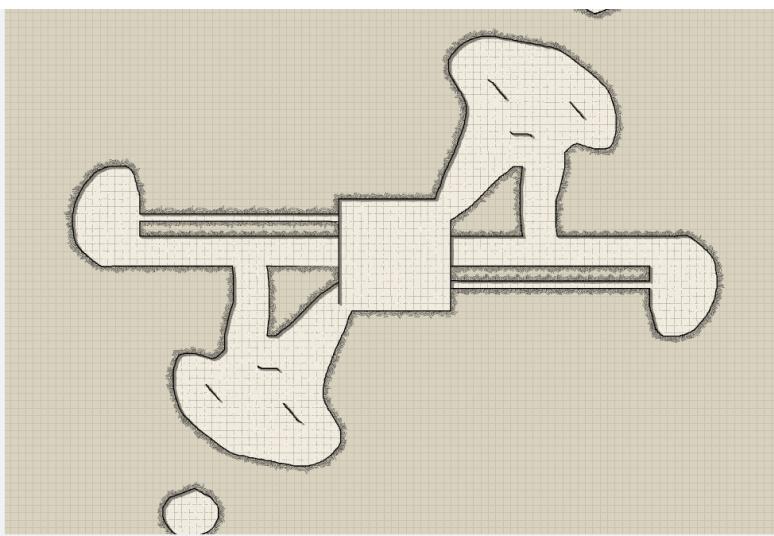
Iteration 1

I created several node diagrams to try and get a feel for what level of complexity to go for and how to make all the elements of a map fit together nicely.

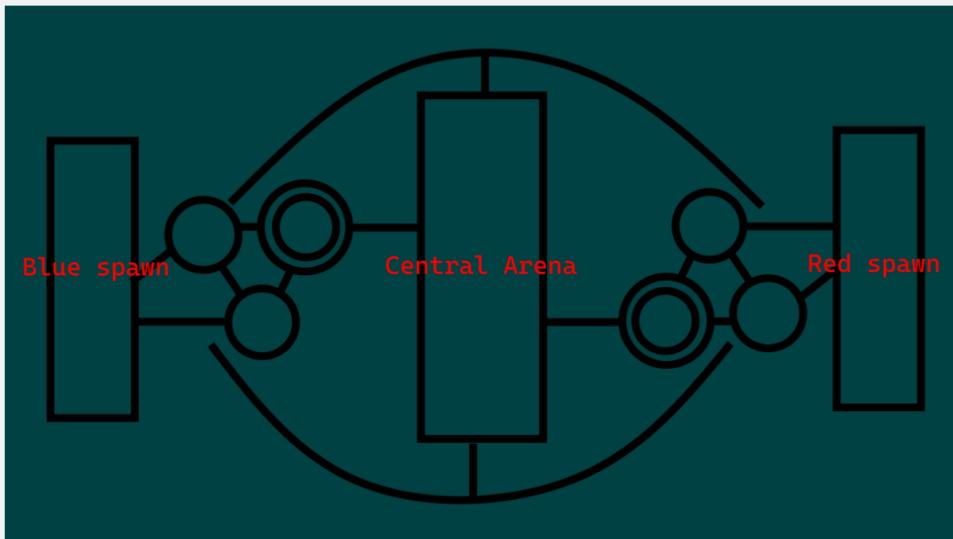


One of the node diagrams created was particularly interesting despite being rather simple, so I also made a top-down layout of the map using "Dungeon Scrawl". A full 2D representation of the map makes it easier to visualise as a completed map than a rather abstract node diagram. It was a useful tool in allowing me to find some disadvantages of the map layout, and ultimately I decided not to move forward with this design due to the prevalence of long corridors which would make for combat that isn't especially dynamic as it makes it difficult to implement a lot of player choice. The design also lacked complexity and verticality.





I eventually decided on a node diagram that I would base my initial design on. It contains two long outer paths and a more dense (likely more action packed) central zone.



This first design is called DM-TreetopTurmoil and it is constructed out of rope bridges and the classic circular tree platform structures seen in similar locations throughout popular media. It features a large bridge on which all of the players in a team spawn, then a series of platforms suspended from the trees, connected by small bridges. All of this is duplicated on the other end of the map for the other team, with a third large bridge suspended between two huge trees in the center. The players can navigate to the other side of the map or the center via two sweeping curved bridges.

This first design had several issues which came to light during the first playtest, such as the spawns being broken, jump pads damaging the player, and the AI being unable to navigate the planks that made up the two curved bridges. These issues were all fixed for the second playtest.





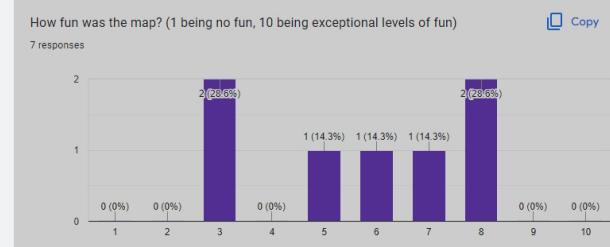
One particularly effective piece of design in this map was the broken bridge section, which acted as a choice for players, allowing them to drop through the broken section to the platform below or continue up the bridge to the platform above.



Because this was effective and coaxed a player to make a decision while still being fully integrated into the environment in an immersive way, the theme of old and broken architecture has carried through to the final iteration of the map, including several examples of the same way of creating a crossroads in a path.

Player Feedback 1

Players on average rated the map as a 5/10 for fun, although this was possibly affected by an issue that caused players to spawn in the wrong place and put them into combat too early. This question in the feedback form was largely just intended to be compared to the next iteration to see if any improvements I made were effective, but by itself, it does show that there's a lot of room for improvement.



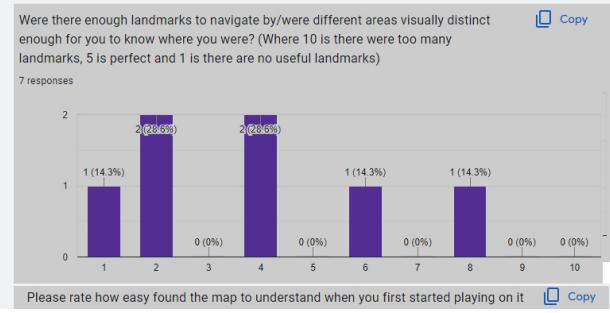
Players found it easy to understand the theme of the map which was encouraging but it may be more challenging to incorporate multiple themes if I were to make the map asymmetrical.

What would you describe the theme of the map as? Copy

7 responses

Trees
trees
Tree
treetops
Treetop pathways
Treetrek
jungle tree top

Making the map asymmetrical would be very valuable as the feedback on navigation suggested that while it was easy to navigate, this was largely due to the small size of the map and the fact that you can see all the way to the other end of the map from spawn.



(where 10 is extremely easy to understand and 1 is incomprehensibly complex)

7 responses

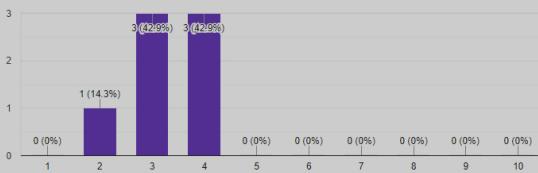


One player noted that seeing from one end to the other made it very easy to sit near spawn and snipe players. This can be resolved without compromising simplicity and navigation by adding more cover. More cover would also mitigate the problem of it being far too easy to fall off of the map, especially with the fast paced gameplay that the map was best for. This could become very frustrating for players.

Did you think there was enough cover on the map? Please rate between 1 and 10. (where 1 is there was no cover and 10 was there was far too much)

[Copy](#)

7 responses



One player mentioned that adding a second layer either below the current one or up in the forest canopy would be a good way to increase the footprint of the map without obscuring important features or forcing people to walk long distances to enter combat. I included a question about the size of the map in the feedback form and players seemed to all agree that the map could do with being a small amount larger.

Did you think the map was large enough? (Where 10 is much too large, 5 is perfect and 1 is much too small)

[Copy](#)

7 responses



Most players agreed that the number and variety of weapons in the map was good so I intend to keep the weapons similar in the next iteration of the map, just adding a few more to correct for its larger size.

How many different types of weapons do you think should be in this map?

7 responses

4

think there was a good amount

Already has a good variety of weapons

6

Mostly long-ranged weapons I think

all but the nuke

I think the current range of weapons was good, maybe have a couple more mid range weapons

Conclusion

In conclusion, for the next map, I need to keep in mind:

- Make the map slightly larger, possibly by adding a second traversable level
- Keep the frequency and variety of weapons and pickups roughly the same
- Add more cover and prevent players from falling off of the map as easily
- Add more landmarks
- Keep the layout of the map easy to understand

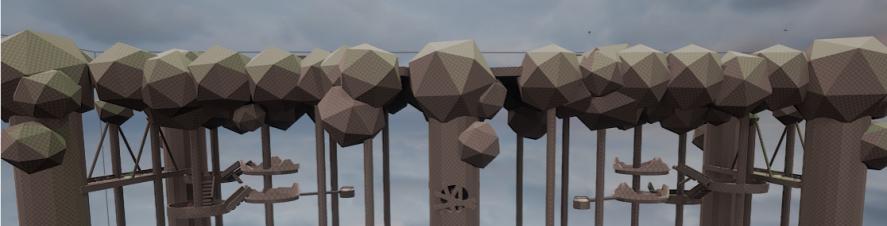
DM-TreetopTurmoil2

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Iteration 2

The second iteration of the map follows a similar design and theme but is a significant amount larger due to a canopy layer added that can be accessed via jump pads. Players now have two different paths to progress across the map which greatly increases replayability and makes the gameplay more dynamic. The long bridges were not interesting to traverse and were removed, replaced with jump pads which bring the players into the more exciting central bridge location quicker.

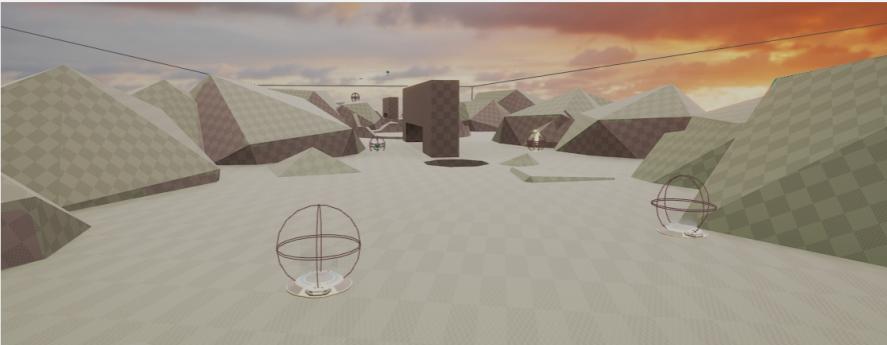




However, the second playtest revealed that there was a significant disadvantage to entering the central bridge. On one hand, it is one of the most important areas strategically and it has the most action of anywhere on the map. On the other, it is a dead end that results in inconsistently paced gameplay and a lack of a feeling of progression. Dead ends are to be avoided completely in the final version of the map.



The canopy layer features a decent amount of cover compared to down below and has two large holes through which players can drop onto the enemy side's platforms or quickly retreat back to their own.

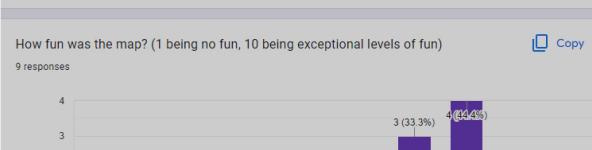
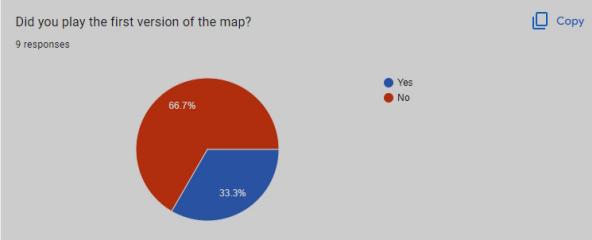


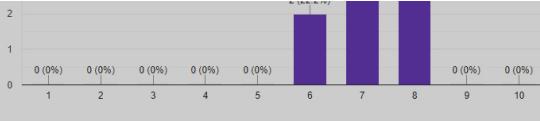
It also features spinning wall sections around some of the platforms, which while serving as cover and a way to prevent players from falling from platforms as easily, also act to stop players from camping with long range weapons such as the sniper and rocket launcher. A player cannot stay behind the cover without moving because the cover will soon rotate out of the way, leaving them vulnerable.



Player Feedback 2

Overall, players in the second playtest appeared to find the map much more fun than the first, giving an average score of above a 7/10 compared to the 5/10 the first map achieved. Most of the people that participated in the playtest of this second iteration had not played the first map and therefore are more likely to be impartial and not have preconceived opinions about the map. People seemed to enjoy the moving walls and dual layers during combat, although the map suffered due to the central dead end, which caused a number of moments where one team was sat in the middle simply waiting for the other to arrive.

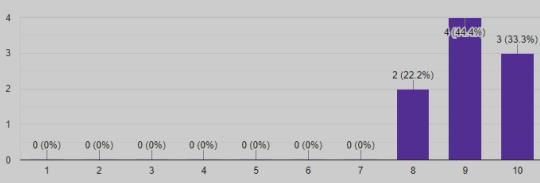




The players seemed to get the theme even quicker than last time which is good as the extra layer had the potential to obfuscate the main theme, and the spinning walls looked more sci-fi than the original treetop designs had planned for.

How obvious was the theme of the map? (where 10 is very obvious and 1 is you have no idea what the theme is) [Copy](#)

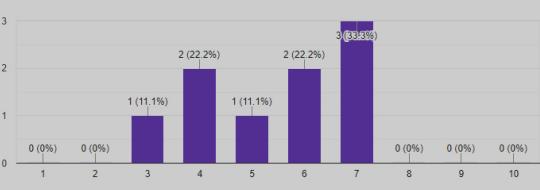
9 responses



The feedback suggests that the size of the map is perfect for the number of players on it, so I will attempt to bring the same size into the final version (although the scale appeared slightly too large compared to the players' character model at some points, this should not be too hard to rectify without compromising the size of the map).

Did you think the map was large enough? (Where 10 is much too large, 5 is perfect and 1 is much too small) [Copy](#)

9 responses



The cover added to the platforms and upper layer appear to have improved gameplay significantly and now players rated the map as an average of 6/10, where 5/10 is the ideal amount of cover. I believe the indication that there's actually slightly too much cover may come from the upper levels where there are two large walls that partially separate the layer into two halves. Perhaps a couple of small windows in these pieces would be enough to make the map feel more open and to give more opportunities to shoot enemy players.

Did you think there was enough cover on the map? Please rate between 1 and 10. (where 1 is there was no cover and 10 was there was far too much) [Copy](#)

9 responses



Players found the second iteration just as easy to navigate as the first which is to be expected as the top layer is rather simple in geometry and routes, acting as a more open battlefield.

Please rate how easy found the map to understand when you first started playing on it (where 10 is extremely easy to understand and 1 is incomprehensibly complex) [Copy](#)

9 responses



I also included a question in the feedback form as a rough estimate of the risk/reward opportunities that the maps offered, and while the first map received only 3 responses for this question out of 6 participants (the rest of the playtesters answered "N/A"), the second map had 8 responses out of 9 players, mostly about the holes that allow players to drop down behind enemy lines from above. I found out for myself that this made for some fun moments during the playtest, so a secret back route to get an advantage over the enemy is sure to be included in the final map.

Please describe one moment during gameplay when you took a risk to get a reward. If you don't think there were any, write N/A.

9 responses

N/A

Jumping down to the lowest platform to the get the shock rifle asap

taking a weapon from the bottom level and flanking around he top to flank the snipers.

taking fall damage from the top to the lower arenas to get multiple double kills

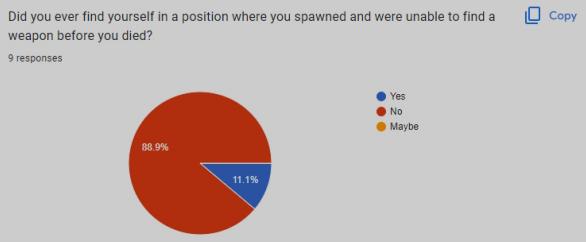
Going to the middle platform to get the health

Tried to get the sniper then get up to the top, but got shot on the bounce pad.

going on the top level and dropping behind them

Jumping into the middle area with the rocket launchers

The feedback form also included a question about whether players ever encountered a situation on the map where they died unfairly quickly, before they could even get a weapon to defend themselves. For the first map, 43% of players said that they had never encountered such a situation, the rest answering "maybe" or yes. Because it is better for the frequency of such situations to be minimised, it is very encouraging that the second iteration had 89% of people say that they had always at least gotten to a weapon before dying. This is possibly because of the added cover, preventing players from being sniped early on from across the map.



Players unanimously said that the type, variety, and frequency of weapons on this iteration of the map was ideal, so I will be sure to conserve that variety for the last iteration of the map.

How many different types of weapons do you think should be in this map? [Copy](#)

9 responses

the current amount works very well

There was a nice amount of weapon types within the map itself, snipers were great as well as shotguns for flanking

I think how any you had was perfect

The shock rifle is redundant thanks to the sniper, other than that, what was there is fine.

nothing needs to be changed, all have a good variety of uses

There is enough imo

Keep it the same, enough weapons for this map size.

i think you had the weapons right. could get a close range or long range weapon most of the time

Conclusion 2

In conclusion, the next map must include:

- A similar variety and density of weapons and armor to iteration 2
- A flanking route that allows players to get behind enemy lines
- The same amount of cover or slightly less than iteration 2
- It needs to be easy to understand
- No dead ends
- Clear theming
- A similar size to iteration 2 including both levels
- More landmarks and uniquely recognisable architecture (this was a point made in the feedback for map 1)

CTF-CastleSphere

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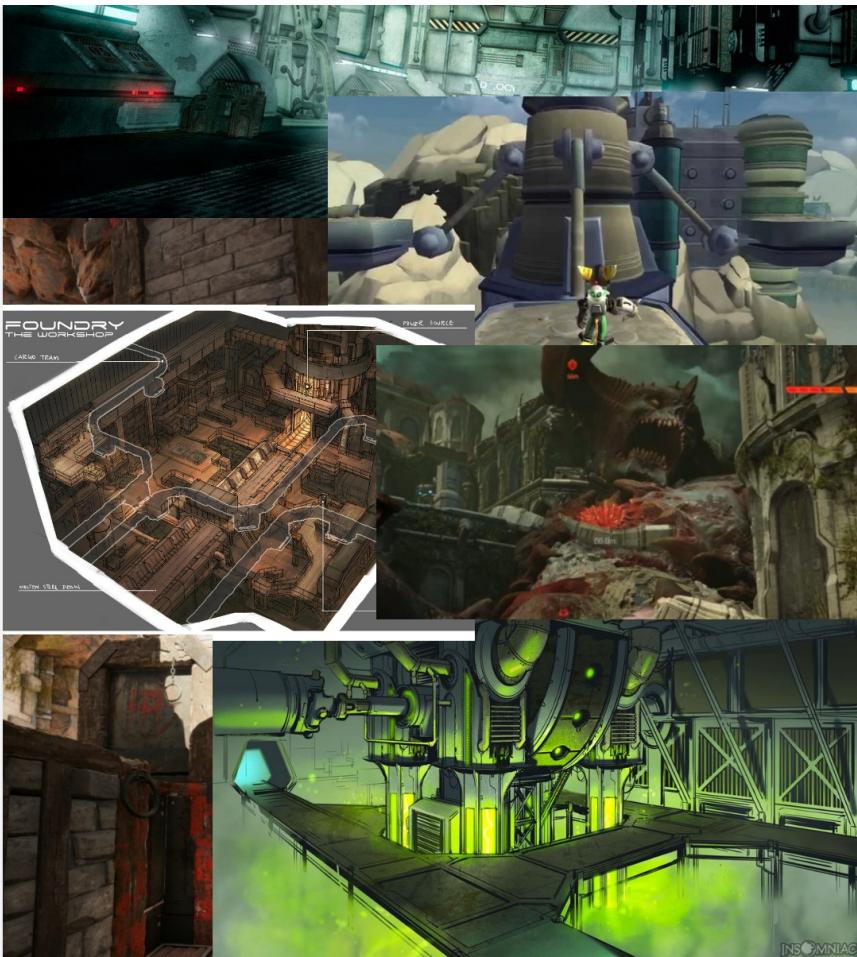
Changes to design

After seeing the consistent feedback about the lack of unique landmarks in the level and wanting to try a more complex design (while keeping it as easy as possible for a player to understand and navigate) I decided to stray from the treetop aesthetic for the final iteration of the level. I felt it was difficult to make two differentiable sides to a forest.

It also made it difficult to implement certain design techniques such as leading lines. Although branches could be placed to direct players to high action areas, it was challenging to place them in areas where the player would see them without them getting in the way, due to the forest's lack of corridors.

I put together a moodboard for the new aesthetic, and with two good ideas, a broken down futuristic land, and a ruined castle, I decided to implement both to form two distinct halves of one map.

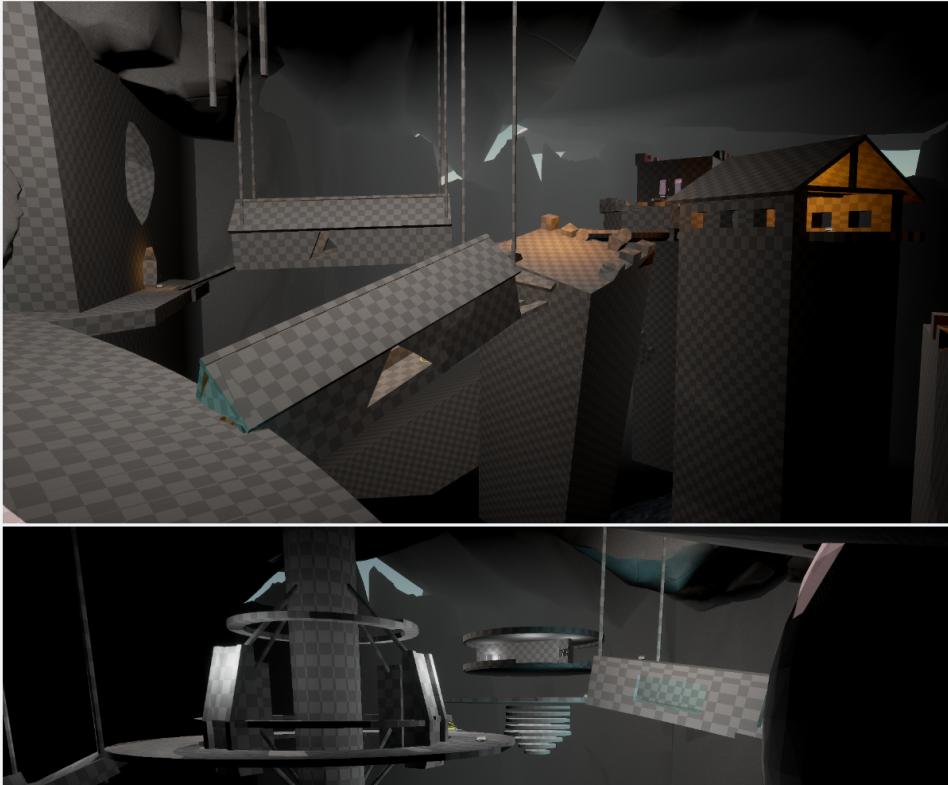


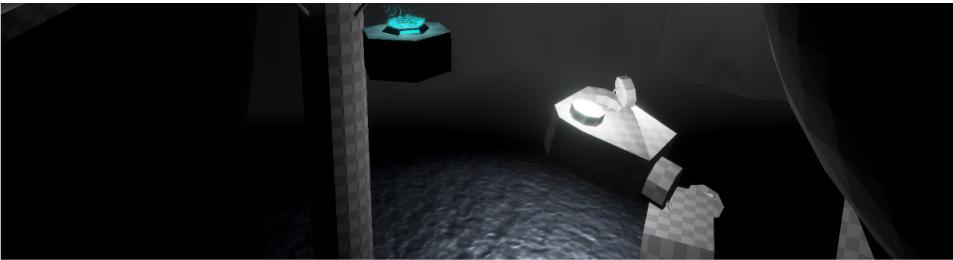


This had the advantage of making the different areas very easy to distinguish while the state of disrepair tied them together. I also had an idea to set the level on the inside of a cave, making it feel like a forgotten corner of some far away land and providing a reason for the apparent lack of maintenance on the structures making up the level. I was not sure this idea would make it into the final version due to problems with players being able to run along the cave walls or rock geometry, and I felt it could make lighting the scene difficult.

The change to CTF

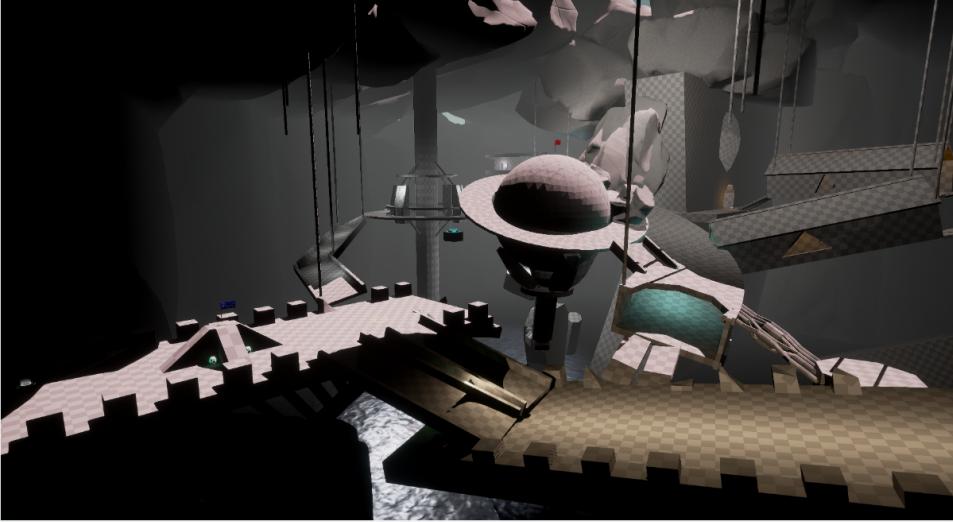
Because design 3 now had two easily distinguishable areas, it became easier to implement a change that had been mentioned in feedback since the first playtest - changing the map to a CTF rather than a TDM map. This was suggested by a player due to the primarily long and thin shape of the first two maps, and I thought it made a lot of sense. Converting the design to a CTF gave me all the more reason to ensure that the players could see the center or at least the objectives of a map as soon as they spawn in. I believe it is very important for accessibility and to ensure every player can understand the layout of the map, or at least where they should immediately be heading, as soon as they spawn in as it allows them to get into the action faster and nobody enjoys getting lost in a map.





Iteration 3

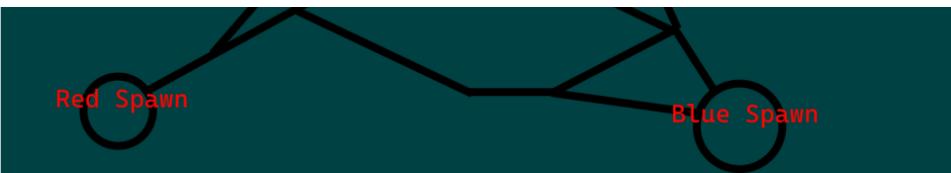
Iteration 3, "CTF-CastleSphere", consists of many routes that primarily lead to a central area that contains both of the flags. The red flag is located on top of a planet-like structure held high up, with little cover. The blue flag is on a small pyramid on a large ruined bridge structure that juts out from the wall. Both flags have little cover from long range weapons, and the routes to both flags get cut off with paths leading to the opposite team's spawn area. The map also contains a back route which offers a quick way to get behind enemy lines, but is easy to counter if anyone notices a player using it.



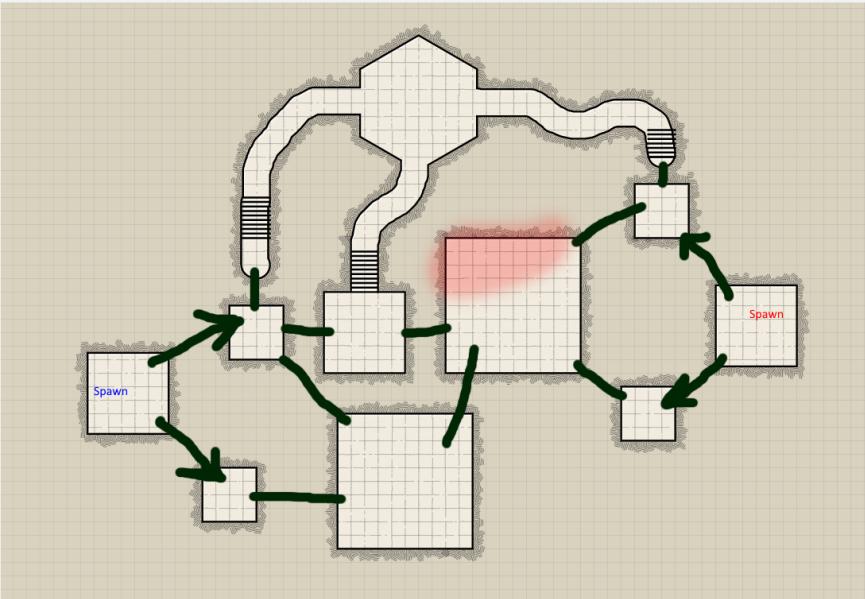
Plan View Designs

I created a new node diagram using what I had learned from the previous two playtests. The first two iterations of the map, while fun, did not allow enough player agency to let matches play out in new and interesting ways each time the map was played. To improve the number of impactful decisions players could make, I added many more branches and pathways, while trying to keep the footprint of the map to a similar area as the previous designs.

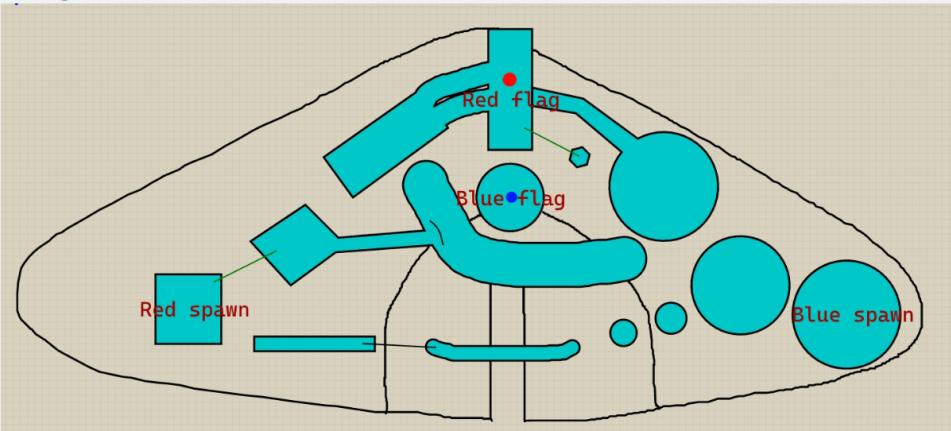




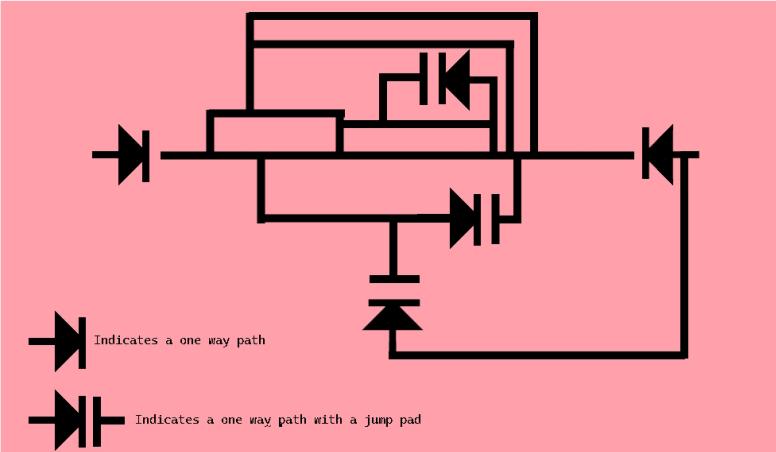
A plan view of the map was created alongside the node diagram (using Dungeon Scrawl) but I changed the plan early in the design process for this iteration. After I placed some geometry in the level and got a feel for the scale of the castle segments and how far the player could jump or fall without taking damage, I took a step back and made a final top down design.



Final design:

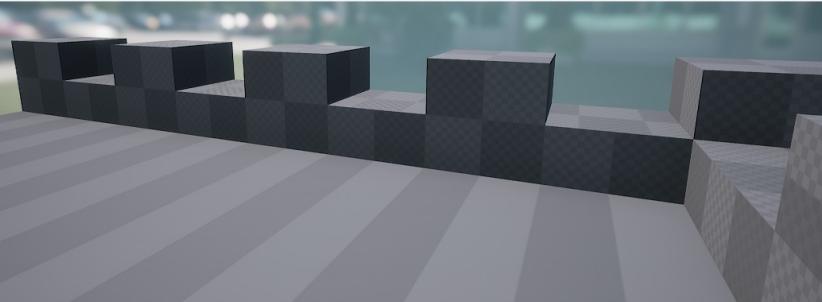
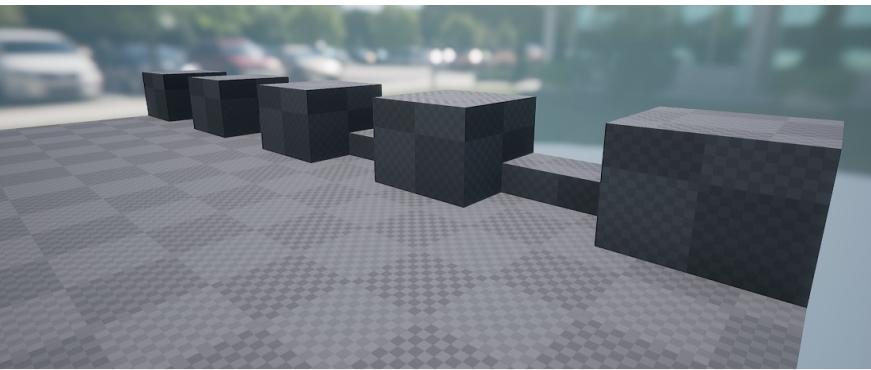


I also produced a Melan diagram to help me understand when and where players would need to make decisions and how I could encourage them to make decisions in a way that felt fair and fun while still having an impact on the outcome of firefights.



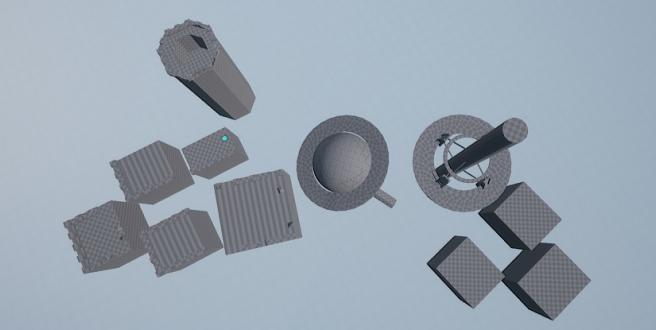
The blockout

The castle section was the first to get a simple blockout. At first, I went for a design with separate crenellations and a lower, thinner piece connecting them and preventing players from simply walking off the edge of the platforms by accident. However, I found that this design could make movement irritating. Because the wall was not smooth, players could not walk along the edge of the wall without getting stuck in between the crenellations. To correct this, I widened the connecting piece, and to prevent players from accidentally stepping up onto the piece I also made it higher. A side effect of this correction was that the castleside players now enjoyed much more cover, but in hindsight this was quite appropriate as previously they would have been too exposed.

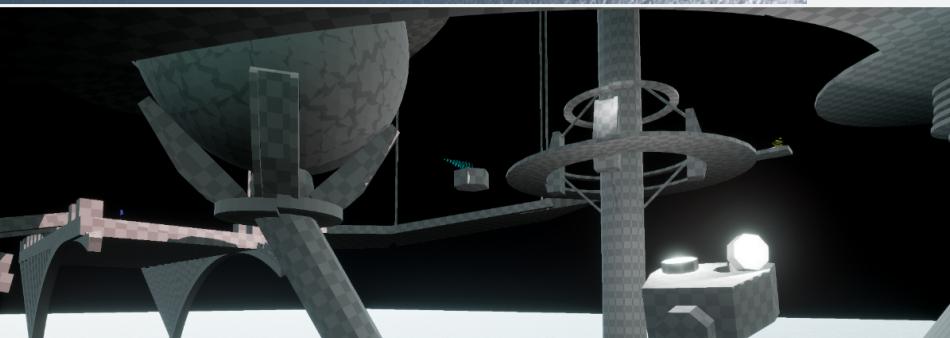
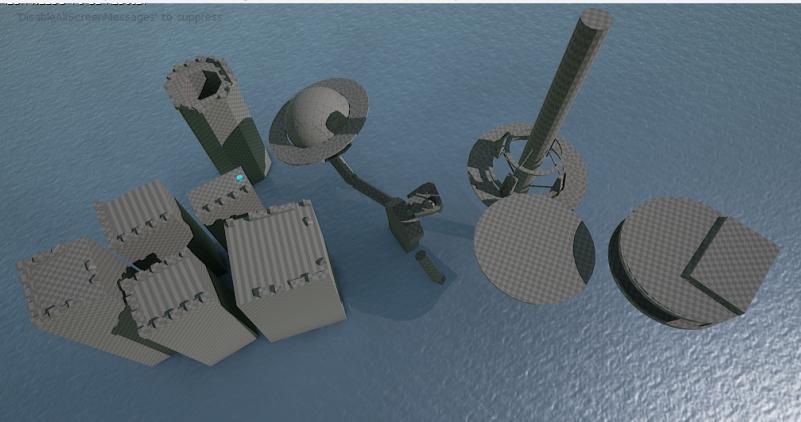


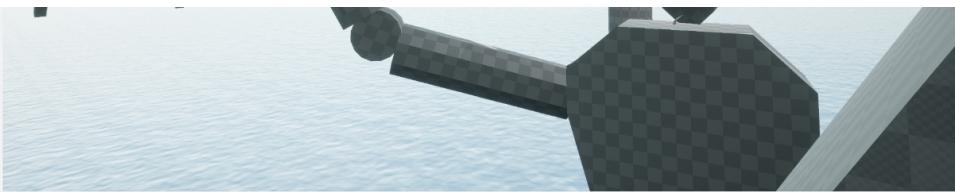
For the other half of the map, I wanted to go with a different theme so that players could easily identify which side of the map they were on and to add a feeling of history, as if the battlefield had been around for many centuries. The robotic side of the map, while technically futuristic, also appeared old and in disrepair. This gives the map a lived-in feeling and more importantly the mechanical nature of the design lent itself to moving components, which was a particularly well received part of the second treetop turmoil map. The centrepiece of this era of the map is a large, broken robotic colossus holding up a planet. The blue team must reach the top of the planet to secure their flag.

It was around this point that I decided to split the map not only by theme but also by adding an angle between the two halves. This makes it more challenging to have both teams be able to see all of the most important sections of the map but allows some elements of the map to be hidden from the beginning, making the world feel more expansive and creating situations where a player may only find a secret or area after several matches on the map, which can feel very rewarding.



I decided to put the planet landmark in the hand of a giant broken down and half-submerged robot, as I feel it's a very interesting feature if anyone were to look a little closer at the map, and it ties in neatly with the other environment pieces.



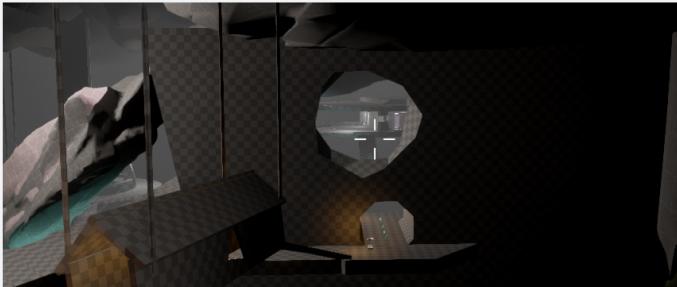


Below is a view of the map from above, with elements of the map that use the castle theme highlighted in red, and robotic sections highlighted in blue. The theme is quite evenly split down the middle of the map, which I think is important as otherwise players would be likely to come out of the experience feeling as though the map had one "main theme", with smaller sections that didn't fit the theme, rather than one cohesive package made with two themes interacting in interesting ways.



Considering cover

To allow the players to still be able to see both of the flags from the spawns I placed them both inside the corner created by the two straight sections to each spawn. Later on, I also added a hole in the central dividing wall that allows each team to see the other leaving their spawn, allowing players to estimate when and where players will be. I believe that this makes more room for tactical play and provides a clearer, easier to predict narrative of how the game will progress in the first 30 seconds, allowing players to make a solid plan or simply making the question of where the enemies are coming from less confusing.



Generally, the cover on the map is most numerous at either spawn, to prevent players from being killed too early. The amount of cover decreases as the players near the flags, which makes it a more risky behavior and stops too many points from being scored too easily. On the castle side, the cover is provided mostly by the walls of corridors or the stone crenellations. On the robotic side central pillars and metal rims provide much of the cover. Both spawns have two separate doors to get out, so that if an enemy player is attempting to camp outside one of the spawn doors, players can simply leave through the other door and ambush them. The image below also shows a dividing wall which is used to give players leaving through one door cover from anyone potentially guarding the other. Also in the interest of avoiding spawn camping is the fact that both spawns are located high up, and are impossible to platform to without the use of the translocator teleport weapon.



Not only does the cover increase in frequency as you get closer to the spawns (which also goes some way towards combatting spawn camping) The geometry closer to the spawns is much higher up than it is at the centre of the map. This makes any players in the center much more vulnerable which means that the level of risk increases as a player gets closer to capturing either of the two flags. The red flag is located quite high above the blue flag but about level with many of the structures closer to spawn. This adds a lot of verticality which helps the gameplay feel fast paced and tactical.

Reinforcement points where players can help to back up their teammates were specifically designed into the maps, including windows which were specifically placed to be able to look into key areas both on the enemy side for aggressive play, and on the friendly side, as this allows players to provide covering fire or prevent ambush attacks on their unsuspecting teammates.

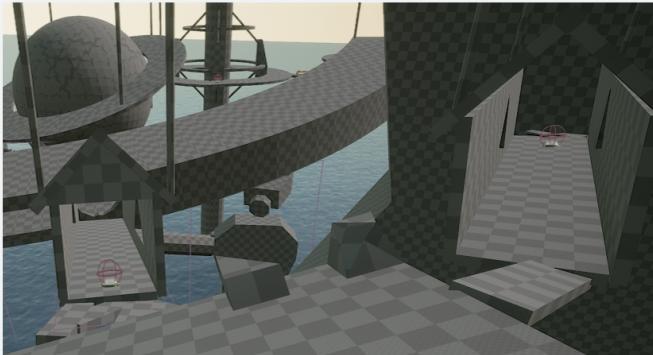
Based on feedback from the second iteration, there are no dead ends or sharp turns on the map as this severely limits the flow of combat and traversal. The only time players would turn back on themselves is when they are taking a flag and running back to base, and they are guided around these turns with armor pickups and geometry. An effort has also been made to limit the number of sharp turns even when they would only require the player to move the camera by less than 90 degrees, as these types of turns would still force the player to stop and look around the corner before continuing, unless they were already familiar with the map. An example of this would be the main corridor, which was originally planned to be perfectly straight apart from a single turn in the middle. I discovered that curving the corridor not only made it easier to navigate and made firefights more interesting, it also allowed windows to be positioned looking directly at important tactical positions such as the flags. Additionally, it meant that I could slope the corridor to the side which looks more dynamic and further feeds into the environmental design.



Weapons

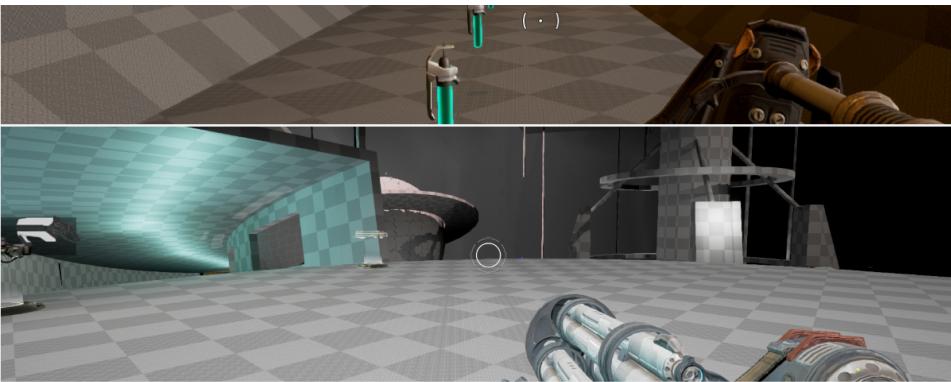
I largely chose the weapons for the map based on how well they work for the specific gameplay scenarios they might be used in based on their location. I included approximately as much weapon variety as was in the second version of treetop turmoil, because players said that the density of weapons in that map was perfect. The map is largely open due to the work put into the visibility of its important features, despite the dividing wall. This openness comes into play with weapon placement because it becomes very difficult to place certain long range, crowd favourite weapons such as the sniper without making them overpowered. As a result, snipers and similar weapons are generally placed lower down in the map so that they come with a lack of cover and not an overwhelming amount of targets to choose from. They are placed away from the main corridors and paths so that the match doesn't become filled with players mostly using snipers. Generally, their placement intends that they will be fired at any players entering the two central areas where the flags are kept, making taking either of the flags more challenging.

Another way I guided players' decision making is with weapon distances - in the example below, there are two paths, both with one weapon. However, because in one path the weapon is closer, players are more likely to take that path. Weapons were mostly placed throughout the map in areas that suited their particular playstyles, or to influence player behavior and prevent them from getting lost.



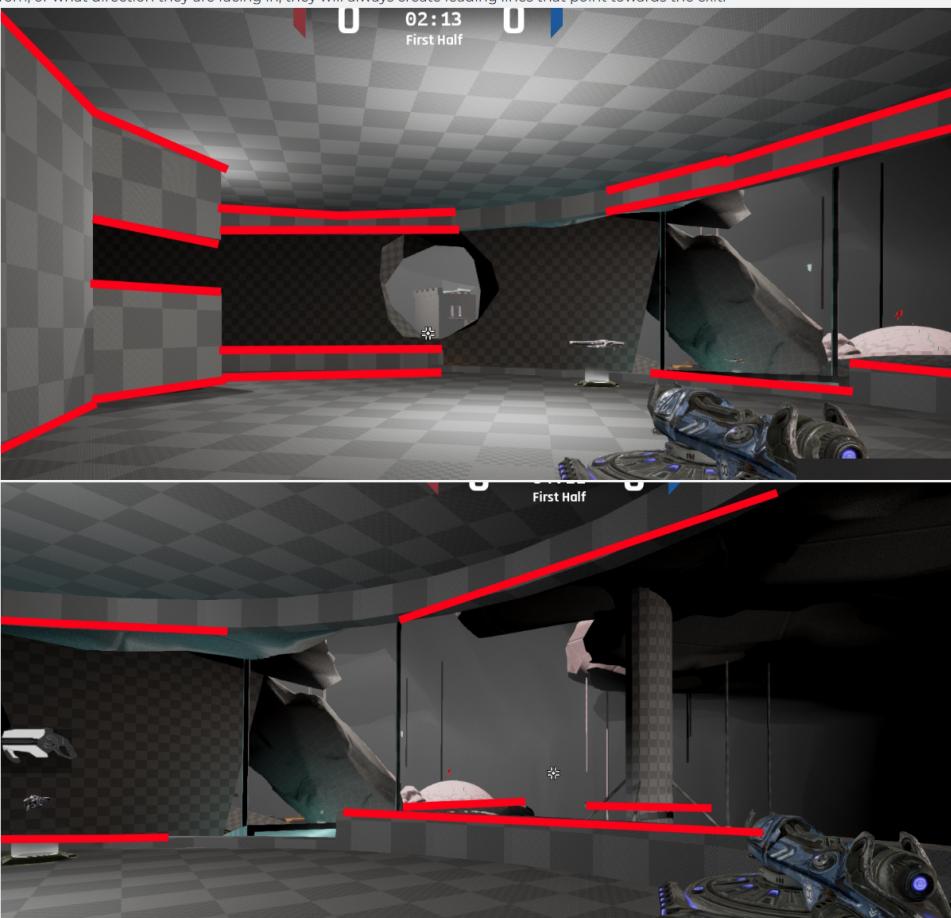
Another example of where I have used weapon placement to influence player behavior is in the yellow tunnel - here, players are much more likely to go right than left, because the weapon is in that direction, and that direction is lit better. Players are also more likely to continue along paths that are lit with the same color as the path they are already on, which is another important part of psychologically aided design that I have taken advantage of throughout the map. I used the subtle lighting and weapon placement clues to tell players where to go because I felt that putting pipes along the roof or floor of the tunnel, while undoubtedly effective and suitable for the robotic theme, was becoming a bit of a cliche in the world of sci-fi level design.



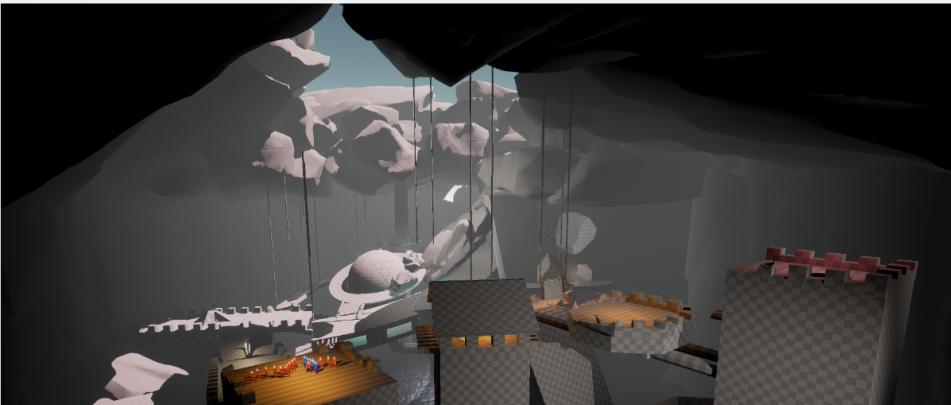


Leading lines

Many leading lines were used in the map to subtly guide player navigation. Initially as I was making the ruined crenellation structures I thought that the pseudorandom nature of the broken stone would be a good excuse to lead the players toward the centre of the map. However, I discovered that the crenellations are too short to be used in such a way, and because the map is set up for the flags and spawns to be visible almost as soon as the players spawn, I found that players did not need much more guidance to make their way to the middle instinctively. Leading lines were used in the red team's spawn, because it is a strange shape and has two entrances. The spawn platform is made from two circles with lips around the edge, which is effective because no matter which side the player is facing the edges from, or what direction they are facing in, they will always create leading lines that point towards the exit.



One way the map does guide players to the centre is the massive pool of light coming from the ceiling which illuminates the two flags as well as the paths up to them. This creates a great sense of atmosphere and turns the centre into a significant focal point and objective that is always visible. Not only are the central planet and bridge bathed in sunlight, but the entire path leading up to the planet is also lit as it is otherwise too small and subtle for players to consistently notice as an important path to take.

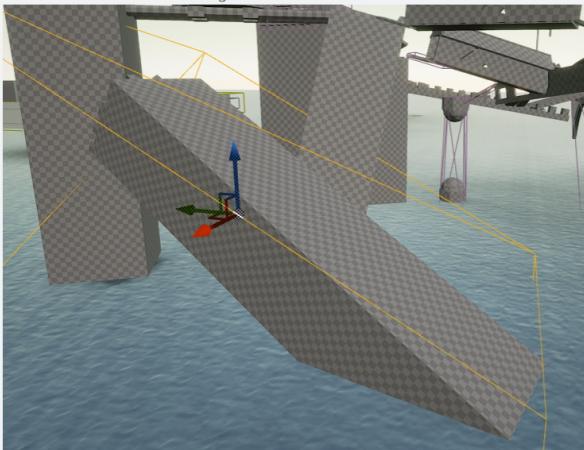




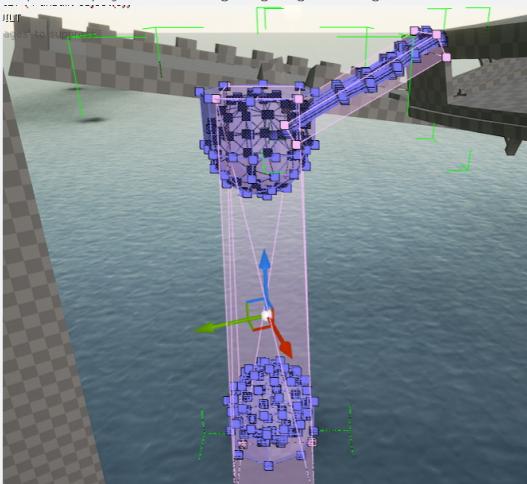
Unfortunately, the lighting in the final version of the map appears less realistic than it did mid-development, as a bug with the UT editor forced me to disable indirect lighting. Certain colors were also used to dictate mood and help players to recognise certain areas sooner, for example secret areas are lit with soft green light, and jump pads are colored yellow or blue based on whether they allow the player to move towards or away from the center.

Fixing interactions with geometry

In addition to the -1000z kill height, I also added several kill zones to ensure players did not get stuck in certain environment objects or find ways to exploit cover in them. This may be misleading for some players, for example the crumbled fallen tower might appear to be just within reach of a fall and this can be frustrating. However, I believe it is far less frustrating than being able to land on the tower without dying, only to find that you're stuck down there until you die anyway. It also avoids the problem of getting sniped by someone who is exploiting the level geometry to gain an advantage. Perhaps it is also a viable solution to simply move environment objects like that out of the way so that players can still see them but could never reach them, but I think this makes the main combat areas feel somewhat isolated and not integrated into the world.



Some of the geometry in the scene is relatively complex and may be beyond what players would be able to navigate comfortably. To aid this issue some of the more complicated areas are covered in blocking volumes; for example these pipes that lead up to the central planet. This makes the level much less frustrating to traverse and prevents players from having to fight against the game's movement.



Additional features

After I had finished the main blockout of the level, I decided to go ahead with encasing the whole thing inside a large cave structure. This gave it a unique aesthetic and gave me some extra ideas such as blocking off the more sheltered side of the planet with debris, forcing players to take the less sheltered route which had a more comparable amount of cover to the other team's flag, and adding an extra pathway from the yellow cave tunnel to the main corridor.



There are two secret areas in the map, one of which is located very centrally and is full of health, armor, and a grenade launcher. If a player takes time out to seek out

this area they can expect to gain a significant but far from insurmountable advantage. The other secret area contains a redeemer, but with very slow recharge times it is mostly just a way to give a very rewarding experience to anyone who goes out of their way to find it without affecting game balance or pace too much.

Near the end of the design process, I decided to add an additional path to connect the yellow tunnel to the top of the main corridor. This was not included in any of my plans and is an example of how solutions that are obvious in hindsight can arrive when you are looking at a full 3D version of the map in front of you, but may fail to appear when you are just using a node diagram or overhead design. The problem this path solves is that it was very unlikely that a player would ever venture all the way up the roof of the main corridor and therefore they would never reach the sniper (and tactical position) at the top. It also cuts down the time to traverse from the yellow tunnel to the main flag area significantly, which is good for example if a player wanted to sneak behind the enemies but changed their mind halfway through or did not see anyone to ambush.



Conclusion 3

In conclusion, I made many changes to my level design based on research, user testing, and feedback, including:

- Making the map slightly larger
- Reducing the time it takes to cross the map and the length of individual pathways
- Adding a route to flank behind the enemy lines
- Adding secret areas and rewarding players for finding them
- Keeping the frequency and variety of weapons and pickups high
- Adding more cover and preventing players from falling off of the map as easily
- Adding more landmarks and making the separate areas more distinct
- Keeping the layout of the map easy to understand
- Keeping a lot of verticality in the map
- Adding leading lines to aid navigation
- Adding specially placed weapons, armor, and health to aid navigation and game balance
- Adding lighting to draw the attention of players to important points

