

LASERED TOAD

Level design document

Sergi Sirvent Sempere

March 2023

[AA1] Assessment 1 - Level Editor: Portal 2 map

Level Design



centro adscrito a:



UNIVERSITAT DE
BARCELONA

Index

References selected.....	3
Introduction.....	3
Map summary.....	4
Map goals.....	8
Top-down map and gameplay.....	9
An explanation of the process followed	11
Issues & Limitations.....	21
List of used assets and their connection	21
Post-mortem.....	22
Important links.....	23

Introduction

Lasered Toad is a Portal 2 level created with the tool of Portal 2 level editor without mods. It is designed to be a level that teaches a different way of playing Portal 2 to users.

References selected

The main reference for this level is the game from Nintendo Switch called Captain Toad: Treasure Tracker released in 2014. In the past I liked it a lot because it presents you a world with a lot of puzzles which were solved in an original way, through the perspective of a camera in isometric position and without being able to jump at any time. Portal 2 is in first person mode, so this reference is oriented to the no-jump concept, with this level I want to transmit this sensation to Portal 2. It should be noted that you cannot jump, but the character gets elevated from the floor sometimes by external elements. I think this will be interesting because Portal 2 is a very vertical game and everyone uses SPACE to jump, so it will be strange for the player. Obviously, I cannot ban the jump mechanic from Portal, so I decided to penalize the player (with dead) if the player wants to jump. For this reason, this level is called Lasered Toad.



Captain Toad: Treasure tracker for Nintendo Switch 2014

As a secondary reference I want to name a playable concept that usually is in the 'Metroidvania' styled games. The concept is backtracking. Since I started to raise the level, I had in mind that when entering the level, the player could see the exit (obviously blocked at the beginning), and that thanks to overcoming certain obstacles and rooms I could through backtracking finally leave.



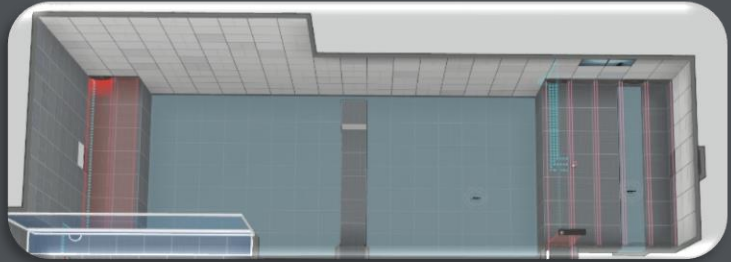
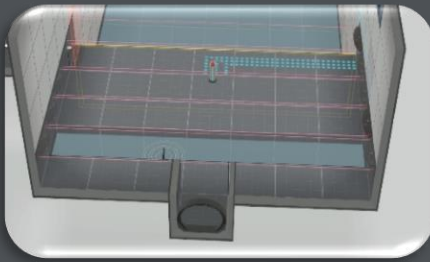
Prince of Persia sands of time I

In conclusion, this level is inspired by the mechanic of no-jump of Captain Toad: Treasure tracker. And you will need to do backtracking if you want to reach the exit of the level.

Map summary

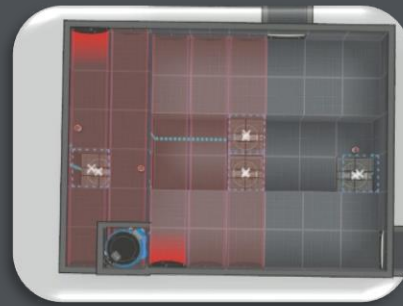
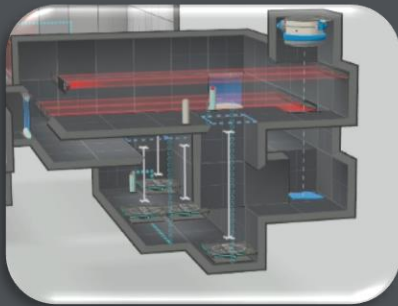
The level will be divided in four rooms with one puzzle in each:

- **Main room or Room0:** In this room is where the player is going to spawn. In this room the player is going to switch on the lasers that are going to restrict him from jumping. The player is going to notice that there is not another option apart of pressing the button that is in front of him. The player can see the exit at the end of the room, and a little platform in the middle. With this room I intend that the player understands that from that moment he will not be able to jump again since the lasers have been activated. Also, the player can see where the exit as a final destination is and also a platform that maybe is useful in the future. Personally, I think that the exit door asset is unique in this game, so I think the player will recognize it at the start of the level.



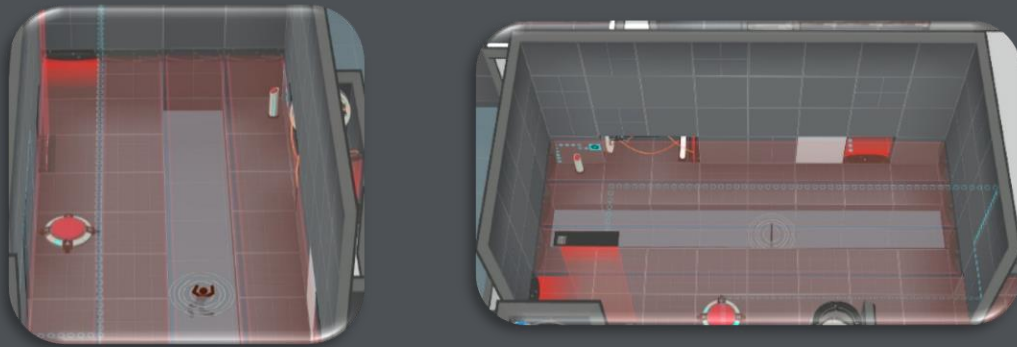
Room0 perspective and top-down view

- **Blue gel room or Room1:** In this room is where the player gets introduced to the repulsion gel, that also is one of the general mechanics in this level. This room is not going to have white walls but it has a pit in the middle, which is going to prevent the player from advance. In this room I intend that the player uses to feel that he is forbidden to jump and that he must look for other different alternatives to advance. I intend to discover the mechanics of the repulsion gel, which by dropping you on it from a high surface, makes you bounce and gain more height. Also, in this room the concept of buttons and lifting platforms is introduced. I have it to totally prevent the player from thinking about using the portal gun.



Room1 perspective and top-down view

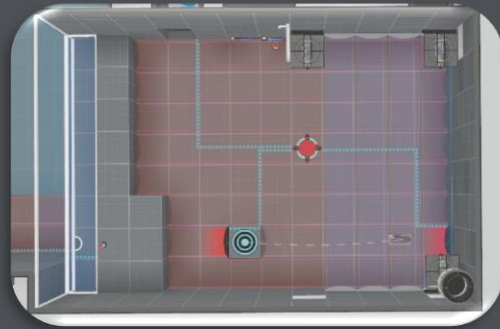
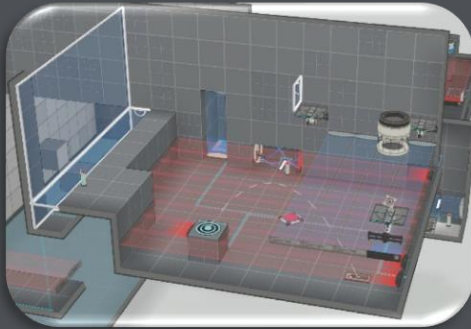
- **Tractor beam room or Room2:** In this room as the name suggests, the player will be introduced to the second general mechanic of this level: the tractor beam. Complementing this room will also show how the pressure buttons and cubes work. In this room the player will again have a pit in the middle, but this time it will be full of deadly goo, therefore he must find a way to cross it. The puzzle of this room will combine the tractor beam with the portals and cubes.



Room2 perspective and top-down view

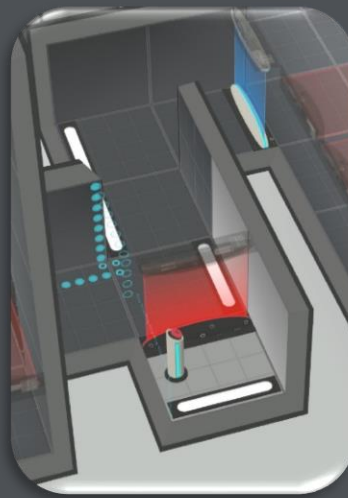
- **Main room floating platform:** On this platform the player will not be able to do much, he will simply have a white wall. With this room I intend that the player stands and that he observes that above the exit there is another white wall, but it is blocked by lasers. I want to transmit the feeling that he cannot do nothing in this part of the level, which will serve him for later.
- **Combining room or Room3:** This room will be accessed by an elevator, since the height will be important when the puzzle is solved. In this room I intend to make the player use the mechanics learned throughout the level to advance and solve the puzzle. I also include an element that is the trampoline which has not been seen at any time, but I think it does not need an introduction since its operation is very simple.

When the puzzle solution is reached, the player must press a button which is placed just above the exit and can see how the lasers that blocked it are free. With this room I intend that the player sees that the exit has already been free and that he cannot do anything else in that room. I want you to remember the central platform at this time, and if you have gone to Room3 first, that you have in mind the platform that you have seen both at the beginning in room 0 and at this moment from the heights, and then you think that there must be some way to get there. Here is the moment when I am inspired by the concept of backtracking.



Room3 perspective and top-down view

- **Extra puzzle:** As an extra puzzle I would like to mention the puzzle that is between Room1 and Room2. Which is a simple puzzle of portals, which introduces the player to the use of portals and teaches him that portals can be created on a wall even if it is protected by lasers.



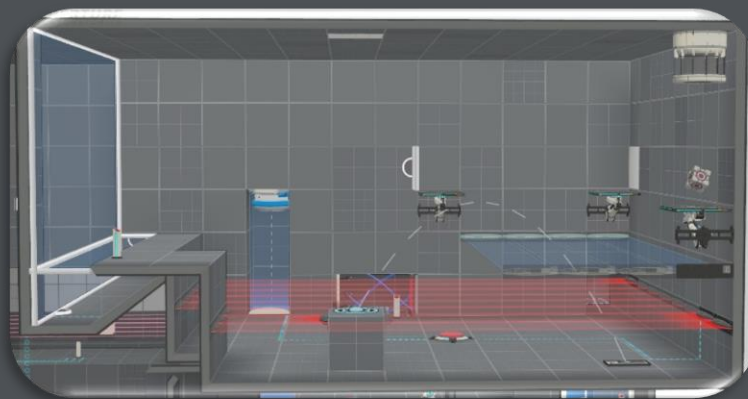
Extra puzzle between Room1 and 2

Map goals

The objective of the map is to leave through the door and escape from the room, as happens in the test chambers of portal 2.

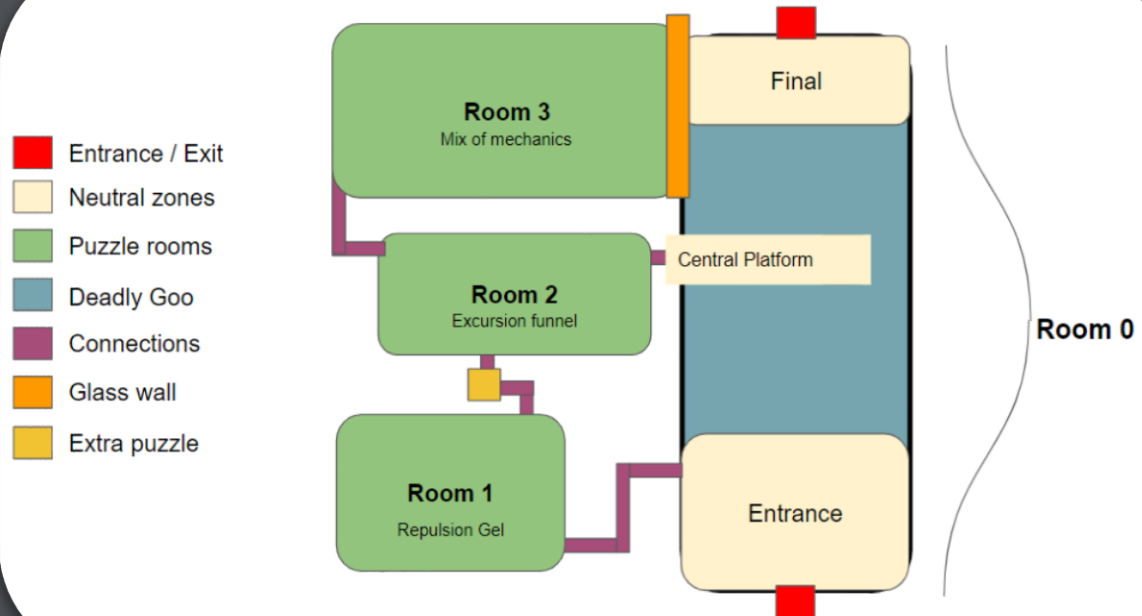
The extrinsic goal of this level is to be able to complete an entire level of portal with its mechanics and functions, but without an important mechanic such as jumping. I think it can be attractive to ban a mechanic which is used a lot in the base game but goes a little unnoticed. This level will show the user that the way you play portal 2 changes a lot if you are forbidden to jump, and I think that being able to complete a level with these characteristics can motivate the player in an extrinsic way.

On the other hand, the objectives or intrinsic motivations at this level, I would highlight the learning of mechanics and the self-realization of the player when completing a puzzle like the one in room 3, with the mechanics that have been taught previously. I think it's a good motivation for the player to see that what he has been learning throughout the level is really put into practice to achieve the main objective which is to get out of the test chamber.



Another view from Room3

Top-down map and gameplay



The player will start at the entrance. The entrance is the first part in which the player can move in Room 0. From this position you can see the central platform, the exit door and the door to Room 1. Once you press the button located in this room you can continue to Room 1.

The doors of the rooms will be laser panels, which will not let the player through until he has completed the puzzle. Should be noted that at each entrance to each room there will be a emancipation grill, which will disintegrate the portals that the player has created and any object he carries with him.

In room 1 the door to the next room will not be laser locked, simply the player will not be able to arrive until he completes the puzzle. When you climb the platforms of this room, you can continue to Room 2.

Room 2 will be closed with a laser, which can be deactivated by the player through a small puzzle located in the connection between room 1 and room 2.

Upon entering room 2 the player will be able to see that if he advances to the other side of the pit there are two doors with lasers through which he can continue. Once the puzzle of room 2 is solved, the player will no longer be able to go back from room 2 due to the operation of the puzzle itself, therefore he will be presented with two options:

- Door to the floating platform: if you cross this door, you will find the floating central platform, which contains nothing more than a white wall, which will be used to finish the level. Therefore, the player will return backwards and enter through the other door of the previous room.

- Door to room 3: if the player chooses this option he will go to a room where there is an elevator. You will go up with the elevator and you will find yourself in the room where the last puzzle is. Once completed, you will see how the lasers covering the exit have been disconnected. At this moment you will see that there is nothing else to do in this room and you will look at another option, which is in the other door of Room 2.

Once on the floating platform and with the lasers disabled, the player will use the portals to head towards the exit.

An explanation of the process followed

Used pipeline model:

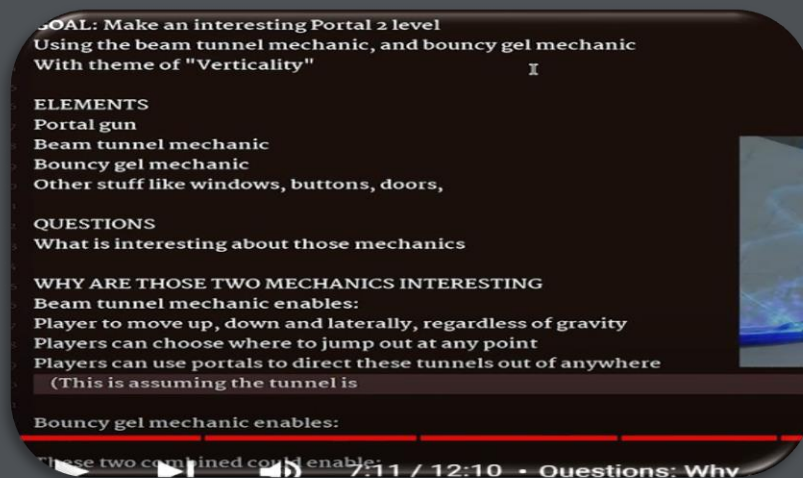


As for the level creation process, I have based myself on the level design pipeline explained in class, which consists of Draw, Build, Test, Dress.

As explained in class and as I have realized, it has not been a linear process through the four concepts, so I will explain step by step what my process was and in which part of the pipeline I locate it.

- Pre-draw: I had never played the portal, so I had no idea how to start this project, so I downloaded the game and played it in its entirety. More than playing, take notes ([link to the document](#)) of all the mechanics that appeared in the game and how you interacted with them. Once this was done, I decided to start thinking about a reference.
- Draw 1: My way of finding the reference was thinking of original ways that the games I had played had to solve the puzzles, I had some ideas in my head such as the levels of 'Invizimals' rays, but I decided to stay with the Toad game, which solved all the puzzles without jumping.
Then I thought which game assets could help me make the player solve puzzles in a fun way, and I finally selected the repulsion gel and the tractor beam. The gel because it will be the only way for the player to jump and the tractor beam because it will be a way for the player to be transported no matter what is on the ground or will allow him to access objects which need the jump.

Then I did the Steve Lee exercise that was exposed in class ([link to the exercise](#)), which teaches you how to start raising the level from a notepad (link of the exercise). When I did the exercise, I realized that I had to consider the great mechanics of this game that is the gun portal, and that I should also support myself in assets such as buttons, platforms etc. When I did the sequence section of this exercise, I thought that the mechanics should be introduced progressively and that I would like the player to glimpse the exit right at the beginning of the level. I decided here the general distribution of the level and the rooms.

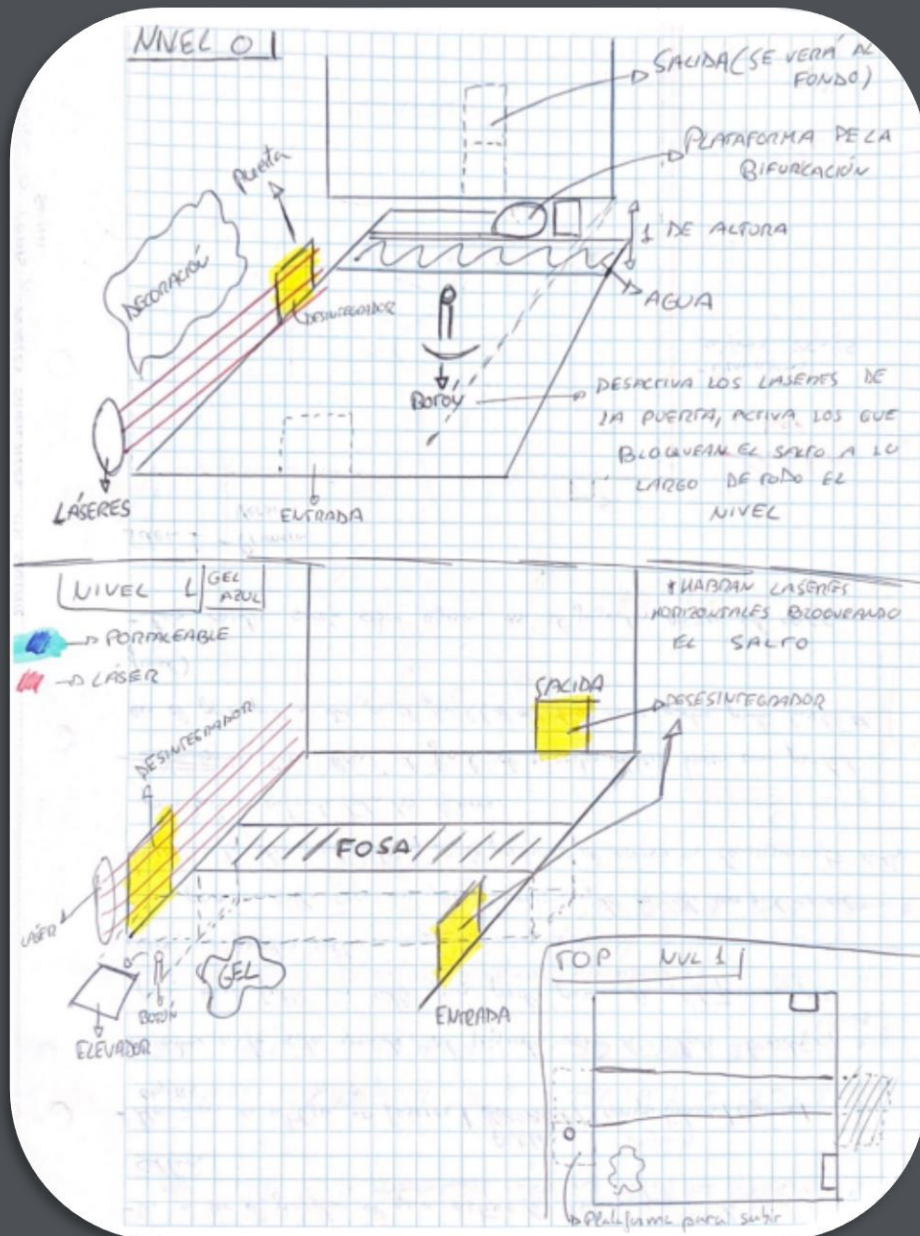


Screenshot of Steve Lee video

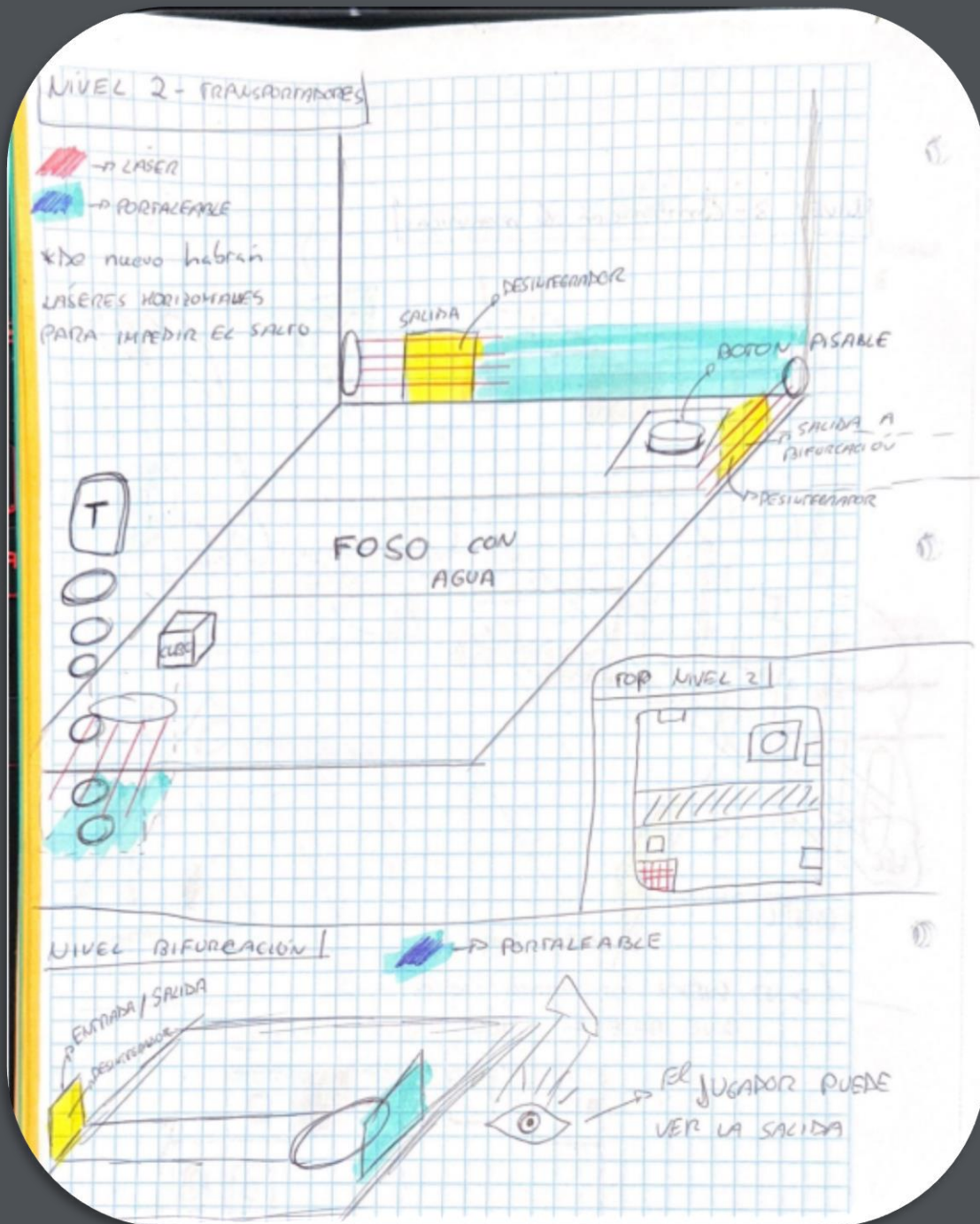
From here, I created by hand what I thought were going to be good levels to introduce the mechanics of repulsion gel and tractor beam, and finally a puzzle in which the two were combined. Drawing the last level, I decided to introduce the trampoline as an element to get height. I also designed the main room or room 0 in which the floating central platform would be included.

And finally, I drew the final distribution with the shapes of the rooms that I had defined in the previous drawings. That is, I was already clear from before that I wanted four rooms, but I did not know the shape of these rooms until I drew the puzzle.

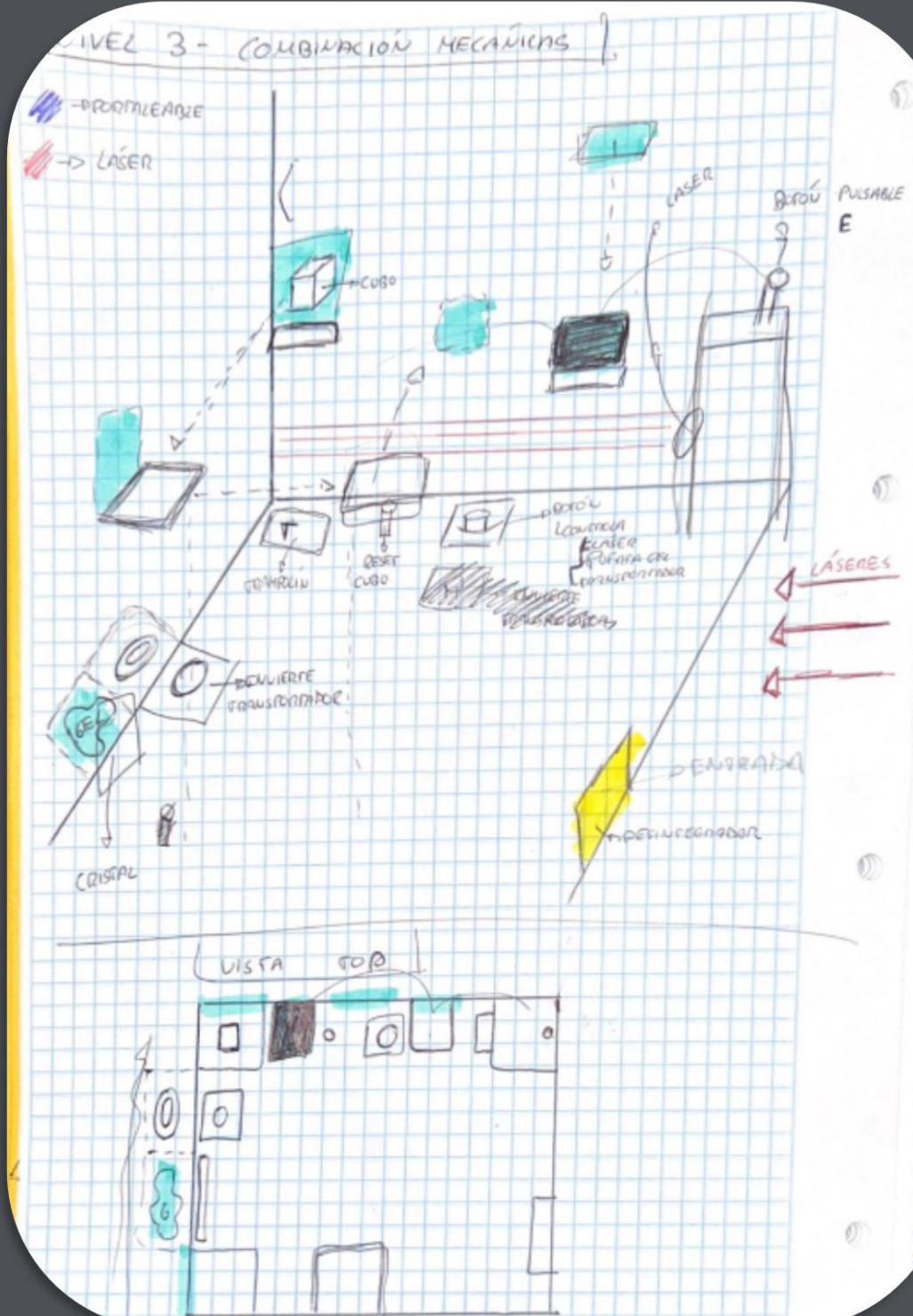
- Room 0 and room 1



- Room 2 and floating platform



- Room 3



- Build 1: With all the puzzles designed, I decided to finally enter the portal editor, and build the puzzle rooms separately. I had to change from the editor certain things that could not be built as I had drawn them, such as that lasers can only hit the wall, so I had to redirect the lasers several times until I found a position where I did not hinder the other assets.
- Test 1 (Individual): When I had the first room built, I played it. I realized that the level did not meet, because I was jumping with the gel correctly but dying with the lasers. Then I had to redesign the level in a different way in paper, that is, I went back to the draw stage and then to the build stage.

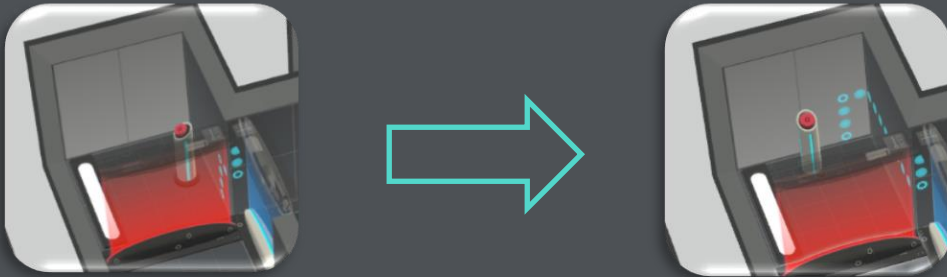
*I used this process between, Draw - Build - Test (individual), with the three main rooms. I would like to highlight the design mistake that I found in the room2, which made me realize that the room could be crossed without having to perform the puzzle.

- Build 2: Once the levels were built and tested, I decided to build the first room of room0, in which the player activates the lasers that do not let him jump and in which he can also see the exit and the central platform. And at this stage I also built the connections between rooms, including the mini puzzle between room 1 and 2.
- Test 2 (individual): in this test I was looking for the level to be completed in the way I had planned, and that it could not be tackled in any way. I also checked if the final puzzle of placing the portal on the floating platform towards the end could be deduced. Thanks to the glass wall of room 3, you could see how the exit was free.

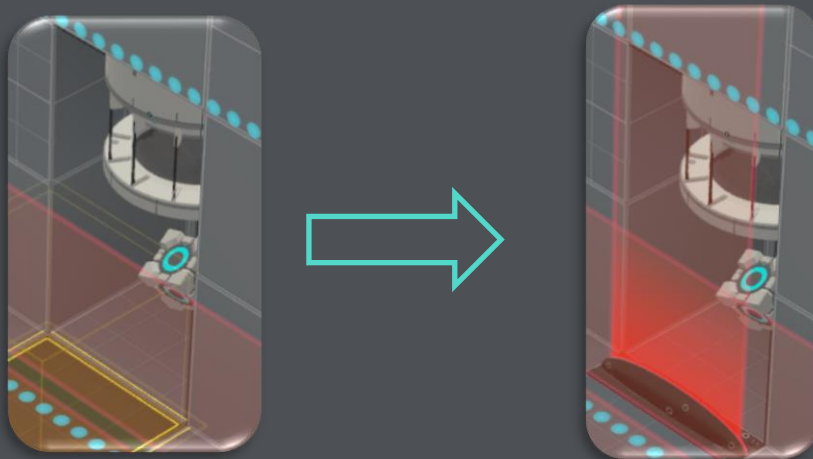
- Test 3(): This test was performed by my girlfriend. She is a person who had never played Portal and was not familiarized with the game. So before playing the level I got into a chamber, like the gyms that we have seen in class, and explained her how the mechanics and assets that I was going to find worked. Then I got into the level. The character was controlled by me. I was asking her what she should do and where she thought she should go. I used this test mainly to find out if my level was intuitive. In this test I concluded that my level lacked lighting, because the rooms do not have many white walls, so light is poor. At the end of the test we complete the level, which surprised me in a good way.
- Test 4: I did this test a week before the delivery because I knew that I have to change things that I had not realized. To do this, I asked two level design classmates (Roger Aguilar and Isaac Medina) to test the level. Unlike the other test, they did know how to play Portal, so I dedicated myself to look and point out what things should change.
- Last Draw – Build – Test: After the tests with classmates, I had to modify certain designs of the levels and also the distribution of the walls that support portals and which do not. They were not big changes in the operation of the puzzles, they were changes that helped the player to better see the objectives he had to meet and other changes that prevented the player from getting stuck or passing the level in a way that is not the one I have designed. After correcting these mistakes, I played at my level for several hours but trying to follow routes I had never tried before, trying to get stuck or failing in the puzzles.

These are the main changes after the tests:

- Changing mini puzzle button position

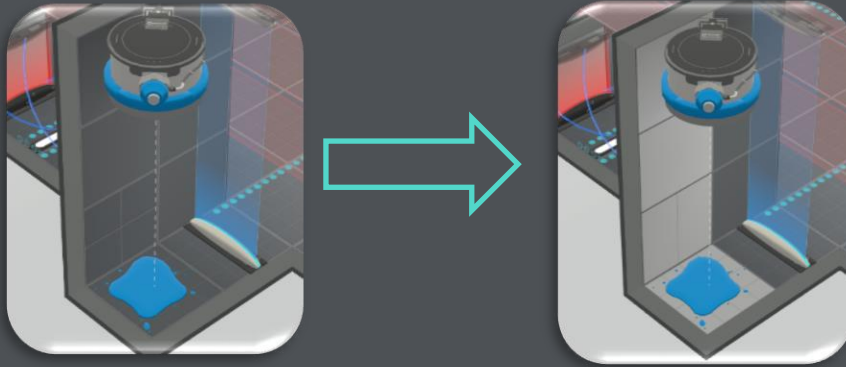


- Adding lasers to cube generator in room2

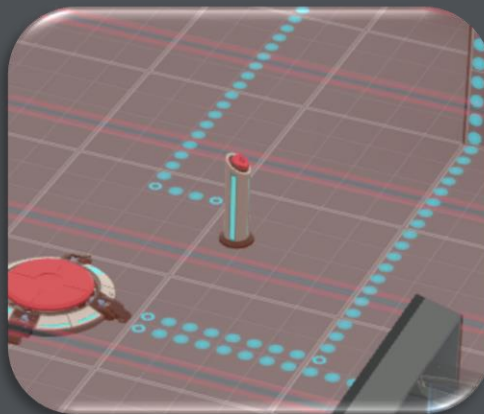


More changes:

- Changing black walls in repulsion gel generator in room3



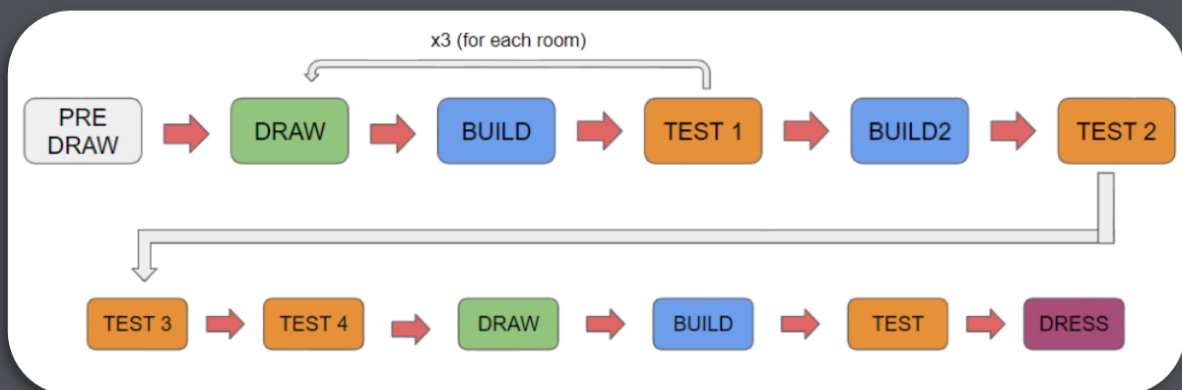
- Adding a button to reset the cube in room3



And more changes like changing from black walls to white walls in some zones, changing the position of some blocks or changing the time of the button that calls the elevator before room3.

























- Dress? : Finally I tried to use the lights as an ornament to the rooms, while using them as signalling how to advance in the level. But I found some compilation problems of the editor itself, which did not let me exceed a certain number of objects in the scene, so I had to cut the number of assets of the scene affecting the appearance but not the gameplay. I left only the lights that I think are necessary to guide the player through the level.

At the end of the work, my pipeline looks like this:



List of used assets and their connection

Apart from the general mechanics, tractor beam and repulsion gel, I used more assets in the level, and as we saw in class, I made a table with their interactions.

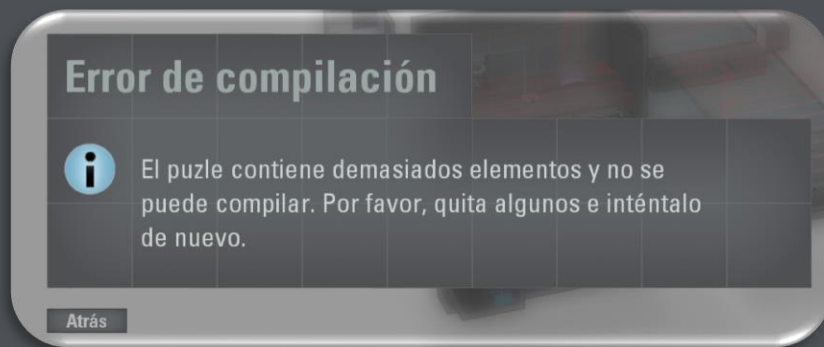
Interactions												
		x	x				x	x				x
	x			x								
	x							x				
		x										
							x	x				
										x		
	x				x			x	x	x		x
	x		x		x		x		x		x	x
							x	x				
						x	x					x
								x				
	x						x	x		x		

*From left to right and top to bottom: portalgun, repulsion gel, emancipation grill, aerial faith plate, panel, panel & piston, tractor beam, cube, super button, pedestal button, deadly goo and laser field

Issues & Limitations

As an extra field, I am going to comment some issues and limitations that I had and I have not been able to find a solution.

- Limitation of objects: In some areas of the map I would have liked to add more lights if the editor had allowed me to do so.



- Orientation of pedestal buttons: the orientation of the buttons that are used in the elevators is not the best, but I can not rotate it in a better way.

Panel with piston: in room1 there is a elevator that always is in his bottom position. As I designed, I want it to stay always at the top position and whne the player clicks the button, the panel goes down. I did not find a solution for this, so the elevatpr is functional, but maybe is unnecessary. **Important linkks**

Post-mortem

Thanks to the realization of this practice I have learned some things:

- What is obvious to me doesn't have to be obvious to other people.
- Designing levels is easier if you do it in an organized way
- You must take into account the limitations of the editor

Next time I would try to familiarize myself better with the editor before designing the levels, because changing things only because the editor does not allow you to do something is very annoying.

Important links

- Steam workshop link:
<https://steamcommunity.com/sharedfiles/filedetails/?id=2949678200>
- Gameplay video link:
<https://youtu.be/n929RXDF7KI>
- Steve Lee exercise:
<https://drive.google.com/file/d/1JOGhP1z0C3vife8-IPpDbcHQ8SaFcZBk/view>
- Drawing design screenshots:
<https://drive.google.com/file/d/1yKYTAAtK7OoxifEoeClBwpHjv4QFw4FI6/view?usp=sharing>
- Pre-draw document:
<https://drive.google.com/file/d/1R9Qvm187lrOd8OvUBeftQsR-mGHTEBvU/view>